Plants for Pollinators in the Inland Northwest

Brownbelted bumble bee (Bombus griseocollis) visiting a blanketflower (Gaillardia aristata). Pamela Pavek

The purpose of this Technical Note is to provide guidance for the design and implementation of conservation plantings to enhance habitat for pollinators including: bees, wasps, butterflies, moths and hummingbirds. Plant species included in this document are adapted to the Inland Northwest, which encompasses northern Idaho, northeastern Oregon and eastern Washington. For species adapted to southern Idaho, southeastern Oregon, northern Nevada and northern Utah, refer to Idaho Plant Materials Technical Note 2A. For lists of species adapted to western Washington and western Oregon, refer to the Oregon Plant Materials Technical Note 13.
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Honey bee (Apis mellifera) visiting a Munro’s globemallow (Sphaeralcea munroana) flower. Pamela Pavek
INTRODUCTION

Pollinators include bees, moths, flies, beetles, wasps, desert bats, hummingbirds, and butterflies. Collectively, pollinators are critical to the function of terrestrial ecosystems because they enhance plant reproduction.

Many of the world’s crop species benefit from insect pollination, which is mostly provided by bees. In North America, bees pollinate many billions of dollars worth of crops annually. Up to one quarter of our diet comes from crops whose production benefits from pollinating bees.

Pollinators are threatened world-wide by habitat loss, habitat fragmentation, pesticides, disease and parasites. The loss of pollinators has serious economic implications for humans and for maintaining ecosystem diversity and stability.

The Natural Resources Conservation Service can assist landowners with habitat enhancement for pollinators by encouraging the establishment of an array of attractive plants that flower throughout the growing season. Plants provide a source of nectar, pollen and cover for adult and immature pollinators and also provide habitat for a large array of other wildlife species.

Well-chosen forbs, legumes, shrubs and trees planted along farm and ranch borders and within fields attract wildlife, including pollinators and other beneficial insects. The correct mix of plant species that bloom throughout the growing season will provide a continuous source of nectar and pollen needed by insects. An ideal plant mix would be one that consists of nine species: three that bloom early in the season, three in mid-season and three in late season. However in areas with less than 16 inches of mean annual precipitation, nine adapted and commercially produced species may not always be available.

Annual plants can be useful tools in pollinator plantings because they produce tremendous amounts of flowers. However, annual crops only last one growing season and can be very competitive with perennial species that are slower establishing. Annual plants may also be “weedy”. Consequently, annuals should only be considered for small odd areas and should not be mixed with perennials. A few annual plants that readily attract pollinators include buckwheat, canola, safflower, berseem clover, camelina, lentils, dry peas and sunflowers. Annuals can also be used as interim crops prior to planting perennials, to suppress weed growth and reduce the weed seed bank.
Habitat Considerations

Habitat needs for pollinators are similar to other animal species: food, shelter, nesting sites and water. Shelter and nesting sites may be a limiting factor in your project area and should be considered during planning.

Nectar and pollen from flowering plants provide food for pollinators. Water needs can be met with bird baths, fountains, ponds, puddles and moisture from plants. Moist salt licks help provide mineral requirements for butterflies and sweat bees. Shelter and nesting habitat needs differ by pollinator species and include bare or partially vegetated, well-drained soil; soil banks and cliffs, dead standing or fallen trees with beetle emergence holes, live trees, clumps of grass, live brush, tall grass, piles of leaves and sticks, wood piles, tree bark and rock crevices.

Most native bees are solitary, nesting underground, or less commonly, above ground using beetle holes in dead-wood or dead pithy stems (e.g. elderberry, sumac or rose). Bumble bees are social with colonies of dozens to hundreds of workers. They typically nest in tree hollows or below-ground in old rodent burrows.

In pollinator plantings use of pesticides should be avoided, especially insecticides. (Some applications, like carbaryl bran baits for grasshoppers, are safe for bees.) If pesticides must be used, leave some areas untreated as refuge habitat for predatory and parasitic insects and pollinators that can re-colonize treated areas.

**Table 1: Habitat Requirements for Native Pollinators**

<table>
<thead>
<tr>
<th>Pollinator Type</th>
<th>Food Sources</th>
<th>Shelter Habitat Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solitary bees</td>
<td>Nectar and pollen</td>
<td>Nest in bare and partially vegetated soils where water won't pond; or in beetle holes in deadwood, within pithy stems or twigs or construct nests of mud or leaf pulp</td>
</tr>
<tr>
<td>Bumble bees</td>
<td>Nectar and pollen</td>
<td>Nest cavities underground, often in old rodent burrows, or in hollow trees or beneath clumps of grass</td>
</tr>
<tr>
<td>Butterflies and moths</td>
<td>Nectar, nutrients, minerals and salts from rotting fruit, tree sap, clay deposits and mud puddles</td>
<td>Leaves and stems of larval host plants; also small woodpiles used by species that winter as adults</td>
</tr>
<tr>
<td>Hummingbirds</td>
<td>Nectar, insects, caterpillars, tree sap and willow catkins</td>
<td>Trees, shrubs and vines</td>
</tr>
</tbody>
</table>

Cocoons of a cavity-nesting *Hoplitis* bee in a pithy dead sumac twig. Jim Cane
ECOLOGICAL BENEFITS OF POLLINATOR PLANTINGS

Pollinator-friendly plantings have the potential to provide multiple ecological benefits. They can:

**Reduce pesticide use.** Sequentially flowering plants provide forage and cover for predatory and parasitic insects that help control pest species; established plant communities resist weed invasion.

**Stabilize soil and provide ground cover.** Root systems and above ground vegetation hold soil in place, improve soil moisture infiltration, reduce the risk of erosion and serve as buffers which protect against surface water pollution. Legumes contribute nitrogen to the soil.

**Serve as windbreaks and shelterbelts.** Shrubs and trees protect farmsteads, feeding areas, crops and livestock from wind and dust damage. They also provide food, nesting and cover habitat for a great variety of wildlife, pollinators and other beneficial insects.

ESTABLISHING POLLINATOR PLANTINGS: GENERAL CONSIDERATIONS

- **Select an area that is at least 0.5 acres in size.** This will ensure adequate floral resources are available for pollinators.

- **Start right.** Most grasses and forbs, including legumes, can be started by direct seeding or in some cases by transplanting nursery seedlings. Flowering shrubs and trees are often best established by transplanting nursery seedlings.

- **Determine soil drainage and other soil limitation factors.** Most species will not do well in heavy, poorly drained or saline to sodic soils; select species that can perform well in the soils of the site.

- **Match plants with similar site preferences.** Choose plants that have similar soil and water requirements and that are adapted to the local climate.

- **Water wisely.** Shrub plantings in the drier portions of the Inland Northwest will require irrigation. For the best establishment biweekly watering the first 2 to 3 years is recommended. Once the plants are well established, watering less frequently, but for a longer duration to drive the moisture deeper into the soil will ensure the plants develop their roots more fully ensuring long-term survival.

- **Control weeds.** Most plants do not compete well with weeds during establishment. Start with a weed free area or create one using appropriate herbicides or tillage equipment. Keep the area relatively weed free for the first 2 to 3 years of establishment. Mowing weeds during plant establishment will help suppress weed competition and encourage desired plants.

- **Protect planting from wildlife, livestock and rodents.** Fencing to protect the planting may be required in areas with abundant deer, antelope or elk, or with livestock such as sheep, cattle or horses. This will ensure flowers are available to provide nectar, pollen and
succulent foliage for pollinators. Also, using tubes to protecting shrubs from rodent damage is recommended.

- **Choose the right plant species.** Plantings should include a mixture of species that provide continual blooms throughout the growing season. Depending on precipitation zone, at least one to three species are recommended for each bloom time: spring, summer, and fall. One or two grass species may also be included in the mix if ground cover is needed for erosion control or suppression of weeds. To select plant species for your precipitation zone, use the Approved Pollinator Plant Lists (Tables 2 - 6).

- **Maintain plantings.** Treatments such as haying or mowing may be required outside of the flowering period to remove plant litter or weeds. Spot-spray herbicide treatments may also be needed to control invasive weeds.

- **Be aware of risks associated with certain species planted around orchards.** Chokecherry and serviceberry can harbor pests and disease that may be transferred to orchard crops. Also snowberry may be a host for the snowberry maggot which is nearly impossible to distinguish from the apple maggot. If the apple maggot is found in an orchard or warehouse, production throughout the entire area can be shut down. When planting pollinator habitat around orchards, work with your producer and local extension agent to select species that pose minimal risk to orchard crops.

White-lined sphinx moth (*Hyles lineata*) extracting nectar from a purple sage (*Salvia dorrii*) flower. Pamela Pavek
FIGURE 1: MAP OF AREA COVERED BY THIS TECHNICAL NOTE AND PRECIPITATION ZONES WITHIN THE AREA

SOURCES: Average Monthly or Annual Precipitation (Idaho, Oregon & Washington), 1961-90, Oregon Climate Service at Oregon State University, April 4, 1998. The dataset was developed using the Parameter-elevation Regressions on Independent Slopes Model (PRISM).

USDA Natural Resources Conservation Service Washington State Office, Spokane
January 11, 2011

Coordinate System: Universal Transverse Mercator, Zone 11
Units: Meters, Datum: NAD 1983

Legend
- State Boundaries
- County Boundaries

Annual Precipitation (in inches)
- 5.001 - 9.000
- 9.001 - 12.000
- 12.001 - 16.000
- 16.001 - 18.000
- 18.001 - 25.000
- 25.001 - 185.000
SELECTING PLANT SPECIES FOR POLLINATOR HABITAT

Two methods are presented in this Technical Note for selecting plant species for pollinator habitat: 1) use of Base Mixes and 2) use of the Approved Pollinator Plant Lists to create a unique mix. A base mix can be used as is, or it can be modified with species substitutions (with other species on the Approved Lists) or by altering the proportions within the mix. To make modifications to the base mix or create seeding mixes using the Approved Pollinator Plant Lists, use the NRCS Conservation Practice 327 Job Sheet.

It is strongly recommended several species in a pollinator habitat area be planted by transplanting seedlings, due to a higher rate of success. Transplanted seedlings can be planted along a border of a seeded area, and the planting may be considered a separate practice (386 Field Border or 422 Hedgrow Planting for example). Species that should be transplanted are listed below the High Cost Base Mixes and in the Shrub sections of the Approved Plant Lists.

Grasses are included in the Base Mixes and on the Approved Plant Lists because they provide ground cover. Grasses help to reduce weed competition and the potential for soil erosion. However in areas with heavy cheatgrass, medusahead or ventenata infestations they may be omitted in a planting to allow for the option of using selective grass herbicides.

Care was taken to list species in this Technical Note that are commercially available. A few species in the Base Mixes or on the Lists may sometimes be hard to find, particularly late blooming species. In order to meet the requirements for number of species for each bloom time, it may be necessary to make species substitutions or double or triple the seeding rates of species that are available.

Additional species may be available or become available that were not considered for this technical note. Consult your State Plant Materials Specialist prior to including any species in a planting that is not on the Approved Plant Lists.

Photos and more detailed descriptions of the plants on the lists can be found on pages 37 - 62. Additional information for many of these species can be found in NRCS Plant Guides and Fact Sheets, available by download from the NRCS PLANTS Database.

All of the forbs and shrubs on these lists attract generalist pollinators that utilize pollen and nectar from a variety of plant species. For more specifics about plant-pollinator relationships, see pages 63 and 64 of this document.
**BASE MIXES**

**6 - 9" PRECIPITATION**

### LOW COST BASE MIX - NATIVE AND INTRODUCED SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Achillea millefolium</td>
<td>yarrow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>16%</td>
<td>0.08</td>
</tr>
<tr>
<td>2 Helianthus annuus</td>
<td>sunflower</td>
<td>X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>4</td>
<td>16%</td>
<td>0.64</td>
</tr>
<tr>
<td>3 Melilotus officinalis</td>
<td>sweetclover</td>
<td>X</td>
<td>X</td>
<td></td>
<td>1/8-1/2</td>
<td>1</td>
<td>16%</td>
<td>0.16</td>
</tr>
<tr>
<td>4 Sphaeralcea species</td>
<td>globemallow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>1/4-1/2</td>
<td>2</td>
<td>16%</td>
<td>0.32</td>
</tr>
<tr>
<td>5 Ericameria nauseosa</td>
<td>rubber rabbitbrush</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>16%</td>
<td>0.08</td>
</tr>
<tr>
<td>6 Elymus wawawaiensis</td>
<td>Snake River wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>20%</td>
<td>1.6</td>
</tr>
</tbody>
</table>

### HIGH COST BASE MIX - ALL NATIVE SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Achillea millefolium</td>
<td>yarrow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>25%</td>
<td>0.125</td>
</tr>
<tr>
<td>2 Astragalus filipes</td>
<td>basalt milkvetch</td>
<td>X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>8</td>
<td>25%</td>
<td>2</td>
</tr>
<tr>
<td>3 Machaeranthera canescens</td>
<td>hoary tansyaster</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>1</td>
<td>25%</td>
<td>0.25</td>
</tr>
<tr>
<td>4 Elymus wawawaiensis</td>
<td>Snake River wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>25%</td>
<td>2</td>
</tr>
</tbody>
</table>

### PLUS SEEDLINGS

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Spacing (ft)</th>
<th>% Mix</th>
<th>Plants per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Ericameria nauseosa</td>
<td>rubber rabbitbrush</td>
<td>X</td>
<td></td>
<td></td>
<td>seedling</td>
<td>4</td>
<td>50%</td>
<td>1,360</td>
</tr>
<tr>
<td>6 Purshia tridentata</td>
<td>anteope bitterbrush</td>
<td>X</td>
<td></td>
<td></td>
<td>seedling</td>
<td>6</td>
<td>50%</td>
<td>605</td>
</tr>
</tbody>
</table>
# Plants for Pollinators in the Inland Northwest

## BASE MIXES

### 9 - 12" PRECIPITATION

### LOW COST BASE MIX - NATIVE AND INTRODUCED SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Achillea millefolium</em></td>
<td>yarrow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>16%</td>
<td>0.08</td>
</tr>
<tr>
<td><em>Gaillardia aristata</em></td>
<td>blanketflower</td>
<td>X</td>
<td>X</td>
<td></td>
<td>1/4-1/2</td>
<td>6</td>
<td>16%</td>
<td>0.96</td>
</tr>
<tr>
<td><em>Linum perenne</em></td>
<td>blue flax</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>4</td>
<td>16%</td>
<td>0.64</td>
</tr>
<tr>
<td><em>Medicago sativa</em></td>
<td>alfalfa</td>
<td></td>
<td></td>
<td></td>
<td>1/8-1/2</td>
<td>5</td>
<td>16%</td>
<td>0.8</td>
</tr>
<tr>
<td><em>Ericameria nauseosa</em></td>
<td>rubber rabbitbrush</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>16%</td>
<td>0.08</td>
</tr>
<tr>
<td><em>Elymus wawawaiensis</em></td>
<td>Snake River wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>20%</td>
<td>1.6</td>
</tr>
</tbody>
</table>

### HIGH COST BASE MIX - ALL NATIVE SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Achillea millefolium</em></td>
<td>yarrow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>25%</td>
<td>0.125</td>
</tr>
<tr>
<td><em>Balsamorhiza sagittata</em></td>
<td>arrowleaf balsamroot</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/4</td>
<td>18</td>
<td>25%</td>
<td>4.5</td>
</tr>
<tr>
<td><em>Gaillardia aristata</em></td>
<td>blanketflower</td>
<td>X</td>
<td>X</td>
<td></td>
<td>1/4-1/2</td>
<td>6</td>
<td>25%</td>
<td>1.5</td>
</tr>
<tr>
<td><em>Elymus wawawaiensis</em></td>
<td>Snake River wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>25%</td>
<td>2</td>
</tr>
</tbody>
</table>

### PLUS SEEDLINGS

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Spacing (ft)</th>
<th>% Mix</th>
<th>Plants per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ericameria nauseosa</em></td>
<td>rubber rabbitbrush</td>
<td>X</td>
<td></td>
<td></td>
<td>seedling</td>
<td>4</td>
<td>50%</td>
<td>1,360</td>
</tr>
<tr>
<td><em>Purshia tridentata</em></td>
<td>anteope bitterbrush</td>
<td>X</td>
<td></td>
<td></td>
<td>seedling</td>
<td>6</td>
<td>50%</td>
<td>605</td>
</tr>
</tbody>
</table>
### BASE MIXES

#### 12 - 16" PRECIPITATION

**LOW COST BASE MIX - NATIVE AND INTRODUCED SPECIES**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Achillea millefolium</td>
<td>yarrow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>10%</td>
<td>0.05</td>
</tr>
<tr>
<td>2 Gaillardia aristata</td>
<td>blanket flower</td>
<td>X</td>
<td>X</td>
<td></td>
<td>1/4-1/2</td>
<td>6</td>
<td>10%</td>
<td>0.6</td>
</tr>
<tr>
<td>3 Helianthus annuus</td>
<td>sunflower</td>
<td>X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>4</td>
<td>10%</td>
<td>0.4</td>
</tr>
<tr>
<td>4 Linum perenne</td>
<td>blue flax</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>4</td>
<td>10%</td>
<td>0.4</td>
</tr>
<tr>
<td>5 Medicago sativa</td>
<td>alfalfa</td>
<td>X</td>
<td></td>
<td></td>
<td>1/8-1/2</td>
<td>5</td>
<td>10%</td>
<td>0.5</td>
</tr>
<tr>
<td>6 Onobrychis vicifolia</td>
<td>sainfoin</td>
<td>X</td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>34</td>
<td>10%</td>
<td>3.4</td>
</tr>
<tr>
<td>7 Sanguisorba minor</td>
<td>small burnet</td>
<td>X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>20</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>8 Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>1</td>
<td>10%</td>
<td>0.1</td>
</tr>
<tr>
<td>9 Chrysothamnus viscidiflorus</td>
<td>green rabbitbrush</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>10%</td>
<td>0.05</td>
</tr>
<tr>
<td>10 Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>10%</td>
<td>0.8</td>
</tr>
</tbody>
</table>

**HIGH COST BASE MIX - ALL NATIVE SPECIES**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Achillea millefolium</td>
<td>yarrow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>12%</td>
<td>0.06</td>
</tr>
<tr>
<td>2 Balsamorhiza sagittata</td>
<td>arrowleaf balsamroot</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/4</td>
<td>18</td>
<td>12%</td>
<td>2.16</td>
</tr>
<tr>
<td>3 Cleome lutea</td>
<td>yellow beeflower</td>
<td>X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>10</td>
<td>12%</td>
<td>1.2</td>
</tr>
<tr>
<td>4 Gaillardia aristata</td>
<td>blanket flower</td>
<td>X</td>
<td>X</td>
<td></td>
<td>1/4-1/2</td>
<td>6</td>
<td>12%</td>
<td>0.72</td>
</tr>
<tr>
<td>5 Linum lewisii</td>
<td>Lewis flax</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>5</td>
<td>12%</td>
<td>0.6</td>
</tr>
<tr>
<td>6 Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>X</td>
<td>X</td>
<td></td>
<td>0-1/8</td>
<td>1</td>
<td>12%</td>
<td>0.12</td>
</tr>
<tr>
<td>7 Sphaeralcea species</td>
<td>globemallow</td>
<td>X</td>
<td>X</td>
<td></td>
<td>1/4-1/2</td>
<td>2</td>
<td>12%</td>
<td>0.24</td>
</tr>
<tr>
<td>10 Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>15%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### Bloom Time

- **Bloom Time**
  - **Spring**
  - **Summer**
  - **Fall**

**Planting Depth (in)**: The planting depth for each species is provided in inches (in).

**Full PLS Rate (lb/ac)**: The full PLS rate is given in pounds per acre (lb/ac).

**% Mix**: The percentage of mix is indicated for each species.

**PLS lb/ac**: The amount of PLS per acre is listed.

**Spacing (ft)**: The spacing for each species is listed in feet (ft).

**Plants per Acre**: The number of plants per acre is provided.
## BASE MIXES

### 16 - 18" PRECIPITATION

#### LOW COST BASE MIX - NATIVE AND INTRODUCED SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Time</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scientific Name</strong></td>
<td><strong>Common Name</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Fall</strong></td>
<td><strong>% Mix</strong></td>
<td><strong>PLS</strong></td>
</tr>
<tr>
<td>Achillea millefolium</td>
<td>yarrow</td>
<td>X X</td>
<td>0-1/8</td>
<td>0.5</td>
<td>10%</td>
<td>0.05</td>
</tr>
<tr>
<td>Gaillardia aristata</td>
<td>blanket flower</td>
<td>X X</td>
<td>1/4-1/2</td>
<td>6</td>
<td>10%</td>
<td>0.6</td>
</tr>
<tr>
<td>Linum perenne</td>
<td>blue flax</td>
<td>X</td>
<td>0-1/8</td>
<td>4</td>
<td>10%</td>
<td>0.4</td>
</tr>
<tr>
<td>Medicago sativa</td>
<td>alfalfa</td>
<td>X X</td>
<td>1/8-1/2</td>
<td>5</td>
<td>10%</td>
<td>0.5</td>
</tr>
<tr>
<td>Onobrychis vicifolia</td>
<td>sainfoin</td>
<td>X X</td>
<td>1/4-3/4</td>
<td>34</td>
<td>10%</td>
<td>3.4</td>
</tr>
<tr>
<td>Sanguisorba minor</td>
<td>small burnet</td>
<td>X</td>
<td>1/4-1/2</td>
<td>20</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>X X</td>
<td>1/4-1/2</td>
<td>1</td>
<td>10%</td>
<td>0.1</td>
</tr>
<tr>
<td>Chrysothamnus viscidiflorus</td>
<td>green rabbitbrush</td>
<td>X</td>
<td>0-1/8</td>
<td>0.5</td>
<td>10%</td>
<td>0.05</td>
</tr>
<tr>
<td>Ericameria nauseosa</td>
<td>rubber rabbitbrush</td>
<td>X</td>
<td>0-1/8</td>
<td>0.5</td>
<td>10%</td>
<td>0.05</td>
</tr>
<tr>
<td>Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td>1/4-3/4</td>
<td>8</td>
<td>10%</td>
<td></td>
<td>0.8</td>
</tr>
</tbody>
</table>

#### HIGH COST BASE MIX - ALL NATIVE SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Time</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scientific Name</strong></td>
<td><strong>Common Name</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Fall</strong></td>
<td><strong>% Mix</strong></td>
<td><strong>PLS</strong></td>
</tr>
<tr>
<td>Achillea millefolium</td>
<td>yarrow</td>
<td>X X</td>
<td>0-1/8</td>
<td>0.5</td>
<td>14%</td>
<td>0.07</td>
</tr>
<tr>
<td>Balsamorhiza sagittata</td>
<td>arrowleaf balsamroot</td>
<td>X</td>
<td>0-1/4</td>
<td>18</td>
<td>14%</td>
<td>2.52</td>
</tr>
<tr>
<td>Gaillardia aristata</td>
<td>blanket flower</td>
<td>X X</td>
<td>1/4-1/2</td>
<td>6</td>
<td>14%</td>
<td>0.84</td>
</tr>
<tr>
<td>Cleome lutea</td>
<td>yellow beeflower</td>
<td>X</td>
<td>1/4-1/2</td>
<td>10</td>
<td>14%</td>
<td>1.4</td>
</tr>
<tr>
<td>Linum lewisii</td>
<td>Lewis flax</td>
<td>X</td>
<td>0-1/8</td>
<td>5</td>
<td>14%</td>
<td>0.7</td>
</tr>
<tr>
<td>Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>X X</td>
<td>1/4-1/2</td>
<td>1</td>
<td>14%</td>
<td>0.14</td>
</tr>
<tr>
<td>Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td>1/4-3/4</td>
<td>8</td>
<td>15%</td>
<td></td>
<td>1.2</td>
</tr>
</tbody>
</table>

#### PLUS SEEDINGS

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Time</th>
<th>Planting Depth (in)</th>
<th>Spacing (ft)</th>
<th>% Mix</th>
<th>Plants per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Fall</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scientific Name</strong></td>
<td><strong>Common Name</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Summer</strong></td>
<td><strong>Fall</strong></td>
<td><strong>% Mix</strong></td>
<td><strong>Plants</strong></td>
</tr>
<tr>
<td>Eriogonum heracleoides</td>
<td>Wyeth’s buckwheat</td>
<td>X</td>
<td>seedling</td>
<td>4</td>
<td>33%</td>
<td>906</td>
</tr>
<tr>
<td>Chrysothamnus viscidiflorus</td>
<td>green rabbitbrush</td>
<td>X</td>
<td>seedling</td>
<td>4</td>
<td>33%</td>
<td>906</td>
</tr>
<tr>
<td>Ericameria nauseosa</td>
<td>rubber rabbitbrush</td>
<td>X</td>
<td>seedling</td>
<td>4</td>
<td>33%</td>
<td>906</td>
</tr>
</tbody>
</table>
# Plants for Pollinators in the Inland Northwest

## BASE MIXES

### 18 - 25" PRECIPITATION

### LOW COST BASE MIX - NATIVE AND INTRODUCED SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Achillea millefolium</td>
<td>yarrow</td>
<td>X X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>10%</td>
<td>0.05</td>
</tr>
<tr>
<td>2 Chamerion angustifolium</td>
<td>fireweed</td>
<td>X X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>10%</td>
<td>0.05</td>
</tr>
<tr>
<td>3 Gaillardia aristata</td>
<td>blanket flower</td>
<td>X X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>6</td>
<td>10%</td>
<td>0.6</td>
</tr>
<tr>
<td>4 Linum perenne</td>
<td>blue flax</td>
<td></td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>4</td>
<td>10%</td>
<td>0.4</td>
</tr>
<tr>
<td>5 Medicago sativa</td>
<td>alfalfa</td>
<td>X X</td>
<td></td>
<td></td>
<td>1/8-1/2</td>
<td>5</td>
<td>10%</td>
<td>0.5</td>
</tr>
<tr>
<td>6 Onobrychis vicifolia</td>
<td>sainfoin</td>
<td>X X</td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>34</td>
<td>10%</td>
<td>3.4</td>
</tr>
<tr>
<td>7 Sanguisorba minor</td>
<td>small burnet</td>
<td></td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>20</td>
<td>10%</td>
<td>2</td>
</tr>
<tr>
<td>8 Solidago canadensis</td>
<td>Canada goldenrod</td>
<td>X X</td>
<td></td>
<td></td>
<td>0-1/4</td>
<td>1</td>
<td>10%</td>
<td>0.1</td>
</tr>
<tr>
<td>9 Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>X X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>1</td>
<td>10%</td>
<td>0.1</td>
</tr>
<tr>
<td>10 Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>10%</td>
<td>0.8</td>
</tr>
</tbody>
</table>

### HIGH COST BASE MIX - ALL NATIVE SPECIES

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Full PLS Rate (lb/ac)</th>
<th>% Mix</th>
<th>PLS lb/ac</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Achillea millefolium</td>
<td>yarrow</td>
<td>X X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>14%</td>
<td>0.07</td>
</tr>
<tr>
<td>2 Chamerion angustifolium</td>
<td>fireweed</td>
<td>X X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>0.5</td>
<td>14%</td>
<td>0.07</td>
</tr>
<tr>
<td>3 Eriophyllum lanatum</td>
<td>woolly sunflower</td>
<td>X X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>4</td>
<td>14%</td>
<td>0.56</td>
</tr>
<tr>
<td>4 Gaillardia aristata</td>
<td>blanket flower</td>
<td>X X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>6</td>
<td>14%</td>
<td>0.84</td>
</tr>
<tr>
<td>5 Linum lewisii</td>
<td>Lewis flax</td>
<td>X</td>
<td></td>
<td></td>
<td>0-1/8</td>
<td>5</td>
<td>14%</td>
<td>0.7</td>
</tr>
<tr>
<td>6 Solidago canadensis</td>
<td>Canada goldenrod</td>
<td>X X</td>
<td></td>
<td></td>
<td>0-1/4</td>
<td>1</td>
<td>14%</td>
<td>0.14</td>
</tr>
<tr>
<td>7 Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>X X</td>
<td></td>
<td></td>
<td>1/4-1/2</td>
<td>1</td>
<td>14%</td>
<td>0.14</td>
</tr>
<tr>
<td>8 Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td></td>
<td></td>
<td></td>
<td>1/4-3/4</td>
<td>8</td>
<td>15%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### PLUS SEEDINGS

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Planting Depth (in)</th>
<th>Spacing (ft)</th>
<th>% Mix</th>
<th>Plants per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Holodiscus discolor</td>
<td>oceanspray</td>
<td>X</td>
<td></td>
<td></td>
<td>seedling</td>
<td>6</td>
<td>50%</td>
<td>605</td>
</tr>
<tr>
<td>10 Rosa woodsii</td>
<td>Woods rose</td>
<td>X X</td>
<td></td>
<td></td>
<td>seedling</td>
<td>6</td>
<td>50%</td>
<td>605</td>
</tr>
</tbody>
</table>
POLLINATOR PLANT LISTS

Tables 2 – 6 (pages 15 – 30) are lists of plants that have known value for pollinators and are adapted to the Inland Northwest. The lists are separated into 6 – 9”, 9 – 12”, 12 – 16”, 16 – 18” and 18 – 25” mean annual precipitation zones. Full seeding rates are provided for each species. The seeding rates are derived from target seeding densities of 20- 30 seeds/ft² for species with less than 500,000 seeds per pound, and 40- 50 seeds/ft² for species with more than 500,000 seeds per pound. Seeding rates should be adjusted to percentage of the mix desired when planted with other species.

For instructions on how to make plant selections from these spreadsheets, use the Plant Selections and Establishment Protocols for Pollinator Habitat Plantings that corresponds to your precipitation range on pages 31 – 36.
# TABLE 2: POLLINATOR PLANT LIST 6 – 9 INCH PRECIPITATION

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>spring summer fall</td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,500,000</td>
<td>0.5</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>* Achillea millefolium</td>
<td>yarrow</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>120,000</td>
<td>8</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Astragalus filipes</td>
<td>basalt milkvetch</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>55,000</td>
<td>18</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Balsamorhiza careyana</td>
<td>Carey's balsamroot</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>300,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Chaenactis douglasii</td>
<td>Douglas' dusty maiden</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>45,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Erigeron filifolius</td>
<td>threadleaf fleabane</td>
<td></td>
<td>N</td>
<td>1/8 - 1/2</td>
<td>1,300,000</td>
<td>1</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Erigeron linearis</td>
<td>linearleaf daisy</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>250,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Erigeron pumilus</td>
<td>shaggy daisy</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>1,800,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Helianthus annuus</td>
<td>sunflower</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>45,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Machaeranthera canescens</td>
<td>hoary tansyaster</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>30,000</td>
<td>8</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>* Melilotus officinalis</td>
<td>sweetclover</td>
<td></td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>260,000</td>
<td>1</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>* Mentzelia laevicaulis</td>
<td>blazing star</td>
<td></td>
<td>N</td>
<td>1/4 - 1/4</td>
<td>300,000</td>
<td>8</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Penstemon pruinosus</td>
<td>Chelan penstemon</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>3,000,000</td>
<td>1</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Sphaeralcea species</td>
<td>globemallow</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>500,000</td>
<td>2</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td><strong>GRASSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elymus wawawaiensis</td>
<td>Snake River wheatgrass</td>
<td></td>
<td>N</td>
<td>1/4 - 3/4</td>
<td>139,000</td>
<td>8</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Poa secunda</td>
<td>Sandberg bluegrass</td>
<td></td>
<td>N</td>
<td>1/4 - 1/4</td>
<td>1,000,000</td>
<td>2</td>
<td>N/A</td>
<td>X X</td>
</tr>
</tbody>
</table>
### TABLE 2 CONTINUED: POLLINATOR PLANT LIST 6 – 9 INCH PRECIPITATION

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Caragana arborescens</td>
<td>Siberian peashrub</td>
<td></td>
<td>I</td>
<td>0 - 1/8 or seedlings</td>
<td>693,000</td>
<td>0.5</td>
<td>4</td>
<td>X X</td>
</tr>
<tr>
<td>* Ericameria nauseosa</td>
<td>rubber rabbitbrush</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>500,000</td>
<td>3</td>
<td>4</td>
<td>X X</td>
</tr>
<tr>
<td>Eriogonum niveum</td>
<td>snow buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>300,000</td>
<td>4</td>
<td>4</td>
<td>X X</td>
</tr>
<tr>
<td>Eriogonum sphaerocephalum</td>
<td>round-headed buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>209,000</td>
<td>4</td>
<td>4</td>
<td>X X</td>
</tr>
<tr>
<td>Purshia tridentata</td>
<td>antelope bitterbrush</td>
<td></td>
<td>N</td>
<td>1/2-1.0</td>
<td>15,400</td>
<td>2 or plants</td>
<td>6</td>
<td>X X</td>
</tr>
<tr>
<td>Salvia dorrii</td>
<td>purple sage</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>2</td>
<td>X X</td>
</tr>
</tbody>
</table>

* Species that germinate and establish well. Several of these species should be included in every mix.

^ Plant in clumps of 10 or in rows.
<table>
<thead>
<tr>
<th>FORBS</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
<th>Soil Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUNS</td>
<td>* Achillea millefolium</td>
<td>yarrow</td>
<td>spring summer fall</td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,500,000</td>
<td>0.5</td>
<td>N/A</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td></td>
<td>Astragalus filipes</td>
<td>basalt milkvetch</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>120,000</td>
<td>8</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Balsamorhiza careyana</td>
<td>Carey's balsamroot</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>55,000</td>
<td>18</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Balsamorhiza sagittata</td>
<td>arrowleaf balsamroot</td>
<td>N</td>
<td>0 - 1/4</td>
<td>55,000</td>
<td>18</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crepis atribarba</td>
<td>slender hawksbeard</td>
<td>N</td>
<td>0 - 1/4</td>
<td>800,000</td>
<td>3</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erigeron filifolius</td>
<td>threadleaf fleabane</td>
<td>N</td>
<td>0 - 1/2</td>
<td>300,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erigeron linearis</td>
<td>linearleaf daisy</td>
<td>N</td>
<td>0 - 1/2</td>
<td>250,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erigeron pumilus</td>
<td>shaggy daisy</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>1,800,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Eriophyllum lanatum</td>
<td>woolly sunflower</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>810,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Gaillardia aristata</td>
<td>blanket flower</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>200,000</td>
<td>6</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hedysarum boreale</td>
<td>Northern (UT) sweetvetch</td>
<td>I</td>
<td>1/4 - 1/2</td>
<td>46,000</td>
<td>24</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Helianthus annuus</td>
<td>sunflower</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>45,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Linum lewisii</td>
<td>Lewis flax</td>
<td>N</td>
<td>0 - 1/8</td>
<td>260,000</td>
<td>5</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Linum perenne</td>
<td>blue flax</td>
<td>I</td>
<td>0 - 1/8</td>
<td>278,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lomatium triternatum</td>
<td>nineleaf biscuitroot</td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>45,000</td>
<td>20</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Machaeranthera canescens</td>
<td>hoary tansyaster</td>
<td>N</td>
<td>0 - 1/8</td>
<td>1,300,000</td>
<td>1</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Medicago sativa</td>
<td>alfalfa</td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>200,000</td>
<td>5</td>
<td>N/A</td>
<td>X X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Bloom Color and Time</td>
<td>Origin</td>
<td>Seeding Depth (in)</td>
<td>Seeds/lb</td>
<td>Minimum Seeding Rate (PLS lbs/ac)</td>
<td>Plant Spacing (ft)</td>
<td>Soils</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------</td>
<td>----------------------</td>
<td>--------</td>
<td>-------------------</td>
<td>----------</td>
<td>-----------------------------------</td>
<td>-------------------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* <em>Medicago sativa ssp. falcata</em></td>
<td>yellow blossom alfalfa</td>
<td></td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>211,000</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Mentzelia laevicaulis</td>
<td>blazing star</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>300,000</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oenothera pallida</td>
<td>evening primrose</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>700,000</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penstemon deustus</td>
<td>hotrock penstemon</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,900,000</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penstemon pruinosus</td>
<td>Chelan penstemon</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>3,000,000</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penstemon speciosus</td>
<td>royal (showy) penstemon</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>400,000</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phacelia hastata</td>
<td>whiteleaf phacelia</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>153,000</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phacelia heterophylla</td>
<td>varileaf phacelia</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>1,100,000</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sphaeralcea species</td>
<td>globemallow</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>500,000</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elymus wawawaiensis</td>
<td>Snake River wheatgrass</td>
<td></td>
<td>N</td>
<td>1/4 - 3/4</td>
<td>139,000</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa secunda</td>
<td>Sandberg bluegrass</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>1,000,000</td>
<td>2</td>
<td></td>
<td></td>
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</tbody>
</table>
### TABLE 3 CONTINUED: POLLINATOR PLANT LIST 9 - 12 INCH PRECIPITATION

<table>
<thead>
<tr>
<th>SHRUBS ^</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Caragana arborescens</strong></td>
<td>Siberian peashrub</td>
<td></td>
<td>I</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>10</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>*Ericameria nauseosa</td>
<td>rubber rabbitbrush</td>
<td></td>
<td>N</td>
<td>0 - 1/8 or seedlings</td>
<td>693,000</td>
<td>0.5</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Eriogonum heracleoides</strong></td>
<td>Wyeth's buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>136,000</td>
<td>4</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Eriogonum niveum</strong></td>
<td>snow buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>500,000</td>
<td>3</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Eriogonum sphaerocephalum</strong></td>
<td>round-headed buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>300,000</td>
<td>4</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Eriogonum umbellatum</strong></td>
<td>sulphur-flower buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>209,000</td>
<td>4</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Purshia tridentata</strong></td>
<td>antelope bitterbrush</td>
<td></td>
<td>N</td>
<td>3/4-1.0</td>
<td>15,400</td>
<td>2</td>
<td>6</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Rhus trilobata</strong></td>
<td>skunkbush sumac</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td><strong>Salvia dorri</strong></td>
<td>purple sage</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>2</td>
<td>X</td>
</tr>
</tbody>
</table>

* Species that germinate and establish well. Several of these species should be included in every mix.

^ Plant in clumps of 10 or in rows.
## TABLE 4: POLLINATOR PLANT LIST 12 - 16 INCH PRECIPITATION

<table>
<thead>
<tr>
<th>FORBS</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>N = native, I = introduced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Achillea millefolium</td>
<td>yarrow</td>
<td></td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,500,000</td>
<td>0.5</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Astragalus filipes</td>
<td>basalt milkvetch</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>120,000</td>
<td>8</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Balsamorhiza careyana</td>
<td>Carey's balsamroot</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>55,000</td>
<td>18</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Balsamorhiza sagittata</td>
<td>arrowleaf balsamroot</td>
<td></td>
<td></td>
<td>N</td>
<td>0 - 1/4</td>
<td>55,000</td>
<td>18</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Chaenactis douglasii</td>
<td>Douglas' dustymaiden</td>
<td></td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>350,000</td>
<td>3</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Cleome lutea</td>
<td>yellow bee plant</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>101,000</td>
<td>10</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Crepis atribarba</td>
<td>slender hawksbeard</td>
<td></td>
<td></td>
<td>N</td>
<td>0 - 1/4</td>
<td>800,000</td>
<td>3</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Dalea ornata</td>
<td>western prairie clover</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>148,000</td>
<td>7</td>
<td>N/A</td>
<td>X X X</td>
</tr>
<tr>
<td>Erigeron filifolius</td>
<td>threadleaf fleabane</td>
<td></td>
<td></td>
<td>N</td>
<td>0 - 1/2</td>
<td>300,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Erigeron linearis</td>
<td>linearleaf daisy</td>
<td></td>
<td></td>
<td>N</td>
<td>0 - 1/2</td>
<td>250,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Erigeron pumilus</td>
<td>shaggy daisy</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>1,800,000</td>
<td>4</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>* Eriophyllum lanatum</td>
<td>woolly sunflower</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>810,000</td>
<td>4</td>
<td>N/A</td>
<td>X X X</td>
</tr>
<tr>
<td>* Gaillardia aristata</td>
<td>blanket flower</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>200,000</td>
<td>6</td>
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<td>X X</td>
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<tr>
<td>Hedysarum boreale</td>
<td>Northern (UT) sweetvetch</td>
<td></td>
<td></td>
<td>I</td>
<td>1/4 - 1/2</td>
<td>46,000</td>
<td>24</td>
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<tr>
<td>Helianthella uniflora</td>
<td>little sunflower</td>
<td></td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
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<td>Helianthus annuus</td>
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<tr>
<td>* Linum lewisii</td>
<td>Lewis flax</td>
<td></td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>260,000</td>
<td>5</td>
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<td>X X</td>
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<tr>
<td>* Linum perenne</td>
<td>blue flax</td>
<td></td>
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<td>I</td>
<td>0 - 1/8</td>
<td>278,000</td>
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<tr>
<td>Lomatium dissectum</td>
<td>fernleaf biscuitroot</td>
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<td>1/8 - 1/4</td>
<td>45,000</td>
<td>20</td>
<td>N/A</td>
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### TABLE 4 CONTINUED: POLLINATOR PLANT LIST 12 - 16 INCH PRECIPITATION

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<th>FORBS</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
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<td><strong>FORBS</strong></td>
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</table>
Plants for Pollinators in the Inland Northwest

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Plant Spacing</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poa secunda</td>
<td>Sandberg bluegrass</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>1,000,000</td>
<td>2</td>
<td>N/A</td>
<td></td>
<td></td>
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</table>

**SHRUBS ^**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Origin</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Plant Spacing</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td># Amelanchier alnifolia</td>
<td>serviceberry</td>
<td>N</td>
<td>spring</td>
<td>N</td>
<td>0 - 1/8 or seedlings</td>
<td>732,000</td>
<td>0.5</td>
<td></td>
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</tr>
<tr>
<td>Caragana arborescens</td>
<td>Siberian peashrub</td>
<td>I</td>
<td>summer</td>
<td>I</td>
<td>0 - 1/8 or seedlings</td>
<td>693,000</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Chrysothamnus viscidiflorus</td>
<td>green rabbitbrush</td>
<td>N</td>
<td>fall</td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>136,000</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Ericameria nauseosa</td>
<td>rubber rabbitbrush</td>
<td>N</td>
<td>spring</td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>136,000</td>
<td>4</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Eriogonum heracleoides</td>
<td>Wyeth’s buckwheat</td>
<td>N</td>
<td>spring</td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>209,000</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eriogonum umbellatum</td>
<td>sulphur buckwheat</td>
<td>N</td>
<td>spring</td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>209,000</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Prunus virginiana</td>
<td>chokecherry</td>
<td>N</td>
<td>spring</td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purshia tridentata</td>
<td>antelope bitterbrush</td>
<td>N</td>
<td>summer</td>
<td>N</td>
<td>3/4-1.0</td>
<td>15,400</td>
<td>2 or plants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhus trilobata</td>
<td>skunkbush sumac</td>
<td>N</td>
<td>fall</td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosa woodsii</td>
<td>Woods rose</td>
<td>N</td>
<td>spring</td>
<td>N</td>
<td>3/4-1.0</td>
<td>50,000</td>
<td>1 or plants</td>
<td></td>
<td></td>
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<tr>
<td>Salvia dorri</td>
<td>purple sage</td>
<td>N</td>
<td>spring</td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Species that germinate and establish well. Several of these species should be included in every mix.

^ Plant 90 shrub seedlings per acre of each species. Plant in clumps of 10 or in rows.

# Should not be planted near orchards.
TABLE 5: POLLINATOR PLANT LIST 16 - 18 INCH PRECIPITATION

<table>
<thead>
<tr>
<th>FORBS</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>spring</td>
<td>summer</td>
<td>fall</td>
<td>N = native, I = introduced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* Achillea millefolium</td>
<td>yarrow</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,500,000</td>
<td>0.5</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Astragalus canadensis</td>
<td>Canada milkvetch</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>270,000</td>
<td>4</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Astragalus cicer</td>
<td>cicer milkvetch</td>
<td>☺ ☺ ☺</td>
<td>I</td>
<td>1/4 - 1/2</td>
<td>123,000</td>
<td>7</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Balsamorhiza sagittata</td>
<td>arrowleaf balsamroot</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>0 - 1/4</td>
<td>55,000</td>
<td>18</td>
<td>N/A</td>
<td>X</td>
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<tr>
<td></td>
<td>Cleome lutea</td>
<td>yellow beeplant</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>101,000</td>
<td>10</td>
<td>N/A</td>
<td>X</td>
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<td>Dalea ornata</td>
<td>western prairie clover</td>
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<td>1/4 - 1/2</td>
<td>148,000</td>
<td>7</td>
<td>N/A</td>
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<td>Erigeron filifolius</td>
<td>threadleaf fleabane</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>300,000</td>
<td>4</td>
<td>N/A</td>
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<td>Erigeron pumilus</td>
<td>shaggy daisy</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>1,800,000</td>
<td>4</td>
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<td></td>
<td>Eriophyllum lanatum</td>
<td>woolly sunflower</td>
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<td>N</td>
<td>1/4 - 1/2</td>
<td>810,000</td>
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<tr>
<td></td>
<td>* Gaillardia aristata</td>
<td>blanket flower</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>200,000</td>
<td>6</td>
<td>N/A</td>
<td>X</td>
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<tr>
<td></td>
<td>* Geranium viscosissimum</td>
<td>sticky geranium</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>55,000</td>
<td>20</td>
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<td></td>
<td>Hedysarum boreale</td>
<td>Northern (UT) sweetvetch</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>46,000</td>
<td>24</td>
<td>N/A</td>
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<tr>
<td></td>
<td>Helianthella uniflora</td>
<td>little sunflower</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>41,000</td>
<td>4</td>
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<tr>
<td></td>
<td>* Linum lewisii</td>
<td>Lewis flax</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>0 - 1/8</td>
<td>260,000</td>
<td>5</td>
<td>N/A</td>
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<td></td>
<td>* Linum perenne</td>
<td>blue flax</td>
<td>☺ ☺ ☺</td>
<td>I</td>
<td>0 - 1/8</td>
<td>278,000</td>
<td>4</td>
<td>N/A</td>
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<td>Lomatium dissectum</td>
<td>fernleaf biscuitroot</td>
<td>☺ ☺ ☺</td>
<td>N</td>
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<td>45,000</td>
<td>20</td>
<td>N/A</td>
<td>X</td>
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<td>Lomatium triternatum</td>
<td>nineleaf biscuitroot</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>45,000</td>
<td>20</td>
<td>N/A</td>
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<td>Machaeranthera canescens</td>
<td>hoary tansyaster</td>
<td>☺ ☺ ☺</td>
<td>N</td>
<td>0 - 1/8</td>
<td>1,300,000</td>
<td>1</td>
<td>N/A</td>
<td>X</td>
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<tr>
<td></td>
<td>* Medicago sativa</td>
<td>alfalfa</td>
<td>☺ ☺ ☺</td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>210,000</td>
<td>5</td>
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TABLE 5 CONTINUED: POLLINATOR PLANT LIST 16 - 18 INCH PRECIPITATION

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<thead>
<tr>
<th>FORBS</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N = native, I = introduced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* Medicago sativa ssp. falcata</td>
<td>yellow blossom alfalfa</td>
<td>☀ ☀</td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>211,000</td>
<td>5</td>
<td>N/A</td>
</tr>
<tr>
<td>* Onobrychis viciifolia</td>
<td>sainfoin</td>
<td>☀ ☀</td>
<td>I</td>
<td>1/4 - 3/4</td>
<td>30,000</td>
<td>34</td>
<td>N/A</td>
</tr>
<tr>
<td>Penstemon attenuatus</td>
<td>taper-leaved penstemon</td>
<td>☀</td>
<td>N</td>
<td>0 - 1/8</td>
<td>3,000,000</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>Penstemon deustus</td>
<td>hotrock penstemon</td>
<td>☀</td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,900,000</td>
<td>3</td>
<td>N/A</td>
</tr>
<tr>
<td>Penstemon speciosus</td>
<td>royal (showy) penstemon</td>
<td>☀</td>
<td>N</td>
<td>0 - 1/8</td>
<td>400,000</td>
<td>3</td>
<td>N/A</td>
</tr>
<tr>
<td>Penstemon venustus</td>
<td>Venus penstemon</td>
<td>☀</td>
<td>N</td>
<td>0 - 1/8</td>
<td>1,000,000</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>* Sanguisorba minor</td>
<td>small burnet</td>
<td>☀</td>
<td>I</td>
<td>1/4 - 1/2</td>
<td>48,000</td>
<td>20</td>
<td>N/A</td>
</tr>
<tr>
<td>Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>☀ ☀</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>2,000,000</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td>Symphyotrichum spathulatum</td>
<td>western mountain aster</td>
<td>☀ ☀</td>
<td>N</td>
<td>0 - 1/2</td>
<td>1,290,000</td>
<td>2</td>
<td>N/A</td>
</tr>
<tr>
<td>GRASSES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td>N</td>
<td>1/4 - 3/4</td>
<td>130,000</td>
<td>8</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Festuca idahoensis</td>
<td>Idaho fescue</td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>450,000</td>
<td>4</td>
<td>N/A</td>
<td>X</td>
</tr>
</tbody>
</table>
### TABLE 5 CONTINUED: POLLINATOR PLANT LIST 16 - 18 INCH PRECIPITATION

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHRUBS ^</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scientific Name</strong></td>
<td><strong>Common Name</strong></td>
<td><strong>spring summer fall</strong></td>
<td><strong>Origin</strong></td>
<td><strong>Seeds/lb</strong></td>
<td><strong>Minimum Seeding</strong></td>
<td><strong>Plant Spacing</strong></td>
<td><strong>Soils</strong></td>
</tr>
<tr>
<td># <em>Amelanchier alnifolia</em></td>
<td>serviceberry</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>10</td>
</tr>
<tr>
<td><em>Caragana arborescens</em></td>
<td>Siberian peashrub</td>
<td></td>
<td>I</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>10</td>
</tr>
<tr>
<td><em>Chrysothamnus viscidiflorus</em></td>
<td>green rabbitbrush</td>
<td></td>
<td>N</td>
<td>0 - 1/8 or seedlings</td>
<td>732,000</td>
<td>0.5</td>
<td>4</td>
</tr>
<tr>
<td><em>Crataegus douglasii</em></td>
<td>black hawthorn</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>8</td>
</tr>
<tr>
<td><em>Ericameria nauseosa</em></td>
<td>rubber rabbitbrush</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>693,000</td>
<td>0.5</td>
<td>4</td>
</tr>
<tr>
<td>Eriogonum heracleoides</td>
<td>Wyeth's buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>136,000</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Eriogonum umbellatum</td>
<td>sulphur buckwheat</td>
<td></td>
<td>N</td>
<td>0 - 1/4 or seedlings</td>
<td>209,000</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mahonia aquifolium, <em>M. repens</em></td>
<td>Oregon grape</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>4</td>
</tr>
<tr>
<td># <em>Prunus virginiana</em></td>
<td>chokecherry</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>12</td>
</tr>
<tr>
<td><em>Rhus trilobata</em></td>
<td>skunkbush sumac</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>4</td>
</tr>
<tr>
<td><em>Ribes aureum</em></td>
<td>golden currant</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>6</td>
</tr>
<tr>
<td><em>Ribes cereum</em></td>
<td>wax currant</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>6</td>
</tr>
<tr>
<td><em>Rosa nutkana</em></td>
<td>Nootka rose</td>
<td></td>
<td>N</td>
<td>1/2-1.0</td>
<td>50,000</td>
<td>1 or plants</td>
<td>6</td>
</tr>
<tr>
<td><em>Rosa woodsii</em></td>
<td>Woods rose</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>6</td>
</tr>
<tr>
<td><em>Sambucus nigra ssp cerulea</em></td>
<td>blue elderberry</td>
<td></td>
<td>N</td>
<td>seedlings</td>
<td>N/A</td>
<td>plants</td>
<td>10</td>
</tr>
</tbody>
</table>
**TABLE 5 CONTINUED: POLLINATOR PLANT LIST 16 - 18 INCH PRECIPITATION**

<table>
<thead>
<tr>
<th>*</th>
<th>Species that germinate and establish well. Several of these species should be included in every mix.</th>
</tr>
</thead>
<tbody>
<tr>
<td>^</td>
<td>Plant in clumps of 10 or in rows.</td>
</tr>
<tr>
<td>#</td>
<td>Should not be planted near orchards.</td>
</tr>
</tbody>
</table>
# Plants for Pollinators in the Inland Northwest

## TABLE 6: POLLINATOR PLANT LIST 18 - 25 INCH PRECIPITATION

<table>
<thead>
<tr>
<th>FORBS</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forbs</td>
<td>* Achillea millefolium</td>
<td>yarrow</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,500,000</td>
<td>0.5</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Astragalus canadensis</td>
<td>Canada milkvetch</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>270,000</td>
<td>4</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Astragalus cicer</td>
<td>cicer milkvetch</td>
<td></td>
<td>I</td>
<td>1/4 - 1/2</td>
<td>123,000</td>
<td>7</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Chamerion angustifolium</td>
<td>fireweed</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>6,500,000</td>
<td>0.5</td>
<td>N/A</td>
<td>X X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Erigeron filifolius</td>
<td>threadleaf fleabane</td>
<td></td>
<td>N</td>
<td>0 - 1/2</td>
<td>300,000</td>
<td>3</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Erigeron pumilus</td>
<td>shaggy daisy</td>
<td></td>
<td>N</td>
<td>0 - 1/2</td>
<td>1,800,000</td>
<td>3</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Erigeron speciosus</td>
<td>showy daisy</td>
<td></td>
<td>N</td>
<td>0 - 1/2</td>
<td>1,892,000</td>
<td>3</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Eriophyllum lanatum</td>
<td>woolly sunflower</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>810,000</td>
<td>4</td>
<td>N/A</td>
<td>X X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Gaillardia aristata</td>
<td>blanketflower</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>200,000</td>
<td>6</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Geranium viscosissimum</td>
<td>sticky geranium</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>55,000</td>
<td>20</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Geum triflorum</td>
<td>prairie smoke</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>450,000</td>
<td>2</td>
<td>N/A</td>
<td>X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Helianthella uniflora</td>
<td>little sunflower</td>
<td></td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>41,000</td>
<td>4</td>
<td>N/A</td>
<td>X X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Linum lewisii</td>
<td>Lewis flax</td>
<td></td>
<td>N</td>
<td>0 - 1/8</td>
<td>260,000</td>
<td>5</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Linum perenne</td>
<td>blue flax</td>
<td></td>
<td>I</td>
<td>0 - 1/8</td>
<td>278,000</td>
<td>3</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Lomatium dissectum</td>
<td>fernleaf biscuitroot</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>45,000</td>
<td>20</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>Lomatium triternatum</td>
<td>nineleaf biscuitroot</td>
<td></td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>45,000</td>
<td>20</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Medicago sativa</td>
<td>alfalfa</td>
<td></td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>200,000</td>
<td>5</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Medicago sativa ssp. falcata</td>
<td>yellow blossom alfalfa</td>
<td></td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>211,000</td>
<td>5</td>
<td>N/A</td>
<td>X X</td>
</tr>
<tr>
<td>Forbs</td>
<td>* Onobrychis vicifolia</td>
<td>sainfoin</td>
<td></td>
<td>I</td>
<td>1/4 - 3/4</td>
<td>30,000</td>
<td>34</td>
<td>N/A</td>
<td>X X</td>
</tr>
</tbody>
</table>

### Soils:
- Fine
- Med
- Coarse

### Other:
- * = native
- I = introduced
- Spring, summer, fall
- Minimum seeding rate (PLS lbs/ac)

---

**Table Notes:**
- The table provides information on various forbs that are suitable for pollinators in the Inland Northwest with different precipitation levels.
- The table includes columns for scientific name, common name, bloom color and time, origin (native or introduced), seeding depth, seeds per pound, minimum seeding rate, plant spacing, and soil types.
- The table also indicates the minimum seeding rate in pounds per acre (lbs/ac) and the plant spacing in feet (ft) for each species.
- The table highlights different blooming times (spring, summer, fall), with asterisks indicating native species.
- The table uses abbreviations for soil types: fine, med, coarse.
Plants for Pollinators in the Inland Northwest

**TABLE 6 CONTINUED: POLLINATOR PLANT LIST 18 - 25 INCH PRECIPITATION**

<table>
<thead>
<tr>
<th>FORBS</th>
<th>Bloom Color and Time</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scientific Name</td>
<td>Common Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Penstemon attenuatus</td>
<td>taper-leaved penstemon</td>
<td>N</td>
<td>0 - 1/8</td>
<td>3,000,000</td>
<td>0.5</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Penstemon confertus</td>
<td>yellow pentstemon</td>
<td>N</td>
<td>0 - 1/8</td>
<td>4,600,000</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Penstemon deustus</td>
<td>hotrock penstemon</td>
<td>N</td>
<td>0 - 1/8</td>
<td>2,900,000</td>
<td>3</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Potentilla arguta</td>
<td>tall cinquefoil</td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>4,400,000</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Potentilla gracilis</td>
<td>slender cinquefoil</td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>1,700,000</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>* Sanguisorba minor</td>
<td>small burnet</td>
<td>I</td>
<td>1/4 - 1/2</td>
<td>48,000</td>
<td>20</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solidago canadensis</td>
<td>Canada goldenrod</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>4,600,000</td>
<td>1</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solidago missouriensis</td>
<td>Missouri goldenrod</td>
<td>N</td>
<td>1/4 - 1/2</td>
<td>2,000,000</td>
<td>1</td>
<td>N/A</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Symphyotrichum spathulatum</td>
<td>western mountain aster</td>
<td>N</td>
<td>0 - 1/2</td>
<td>1,290,000</td>
<td>2</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trifolium spp</td>
<td>clover species</td>
<td>I</td>
<td>1/8 - 1/2</td>
<td>300,000</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>GRASSES</strong></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Festuca idahoensis</td>
<td>Idaho fescue</td>
<td>N</td>
<td>1/8 - 1/4</td>
<td>450,000</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pseudoroegneria spicata</td>
<td>bluebunch wheatgrass</td>
<td>N</td>
<td>1/4 - 3/4</td>
<td>130,000</td>
<td>8</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Plants for Pollinators in the Inland Northwest

**TABLE 6 CONTINUED: POLLINATOR PLANT LIST 18 - 25 INCH PRECIPITATION**

<table>
<thead>
<tr>
<th>#</th>
<th>Pollinator Plant Name</th>
<th>Status</th>
<th>Precipitation Range</th>
<th>Seedings</th>
<th>N/A</th>
<th>Plants</th>
<th>X</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Amelanchier alnifolia serviceberry</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>209,000</td>
<td>4</td>
<td>4 X</td>
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</tr>
<tr>
<td>2</td>
<td>Caragana arborescens Siberian peashrub</td>
<td>I</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>209,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
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</tr>
<tr>
<td>3</td>
<td>Ceanothus sanguineus red-stem ceanothus</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>Crataegus douglasii black hawthorn</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
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</tr>
<tr>
<td>5</td>
<td>Dasiphora fruticosa shrubby cinquefoil</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Eriogonum heracleoides Wyeth's buckwheat</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Eriogonum umbellatum sulphur-flower buckwheat</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>Holodiscus discolor oceanspray</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>Mahonia repens Oregon grape</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Philadelphus lewisii Lewis' mockorange</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>11</td>
<td>Physocarpus malvaceus ninebark</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>12</td>
<td>Prunus virginiana chokecherry</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>13</td>
<td>Rhus triolbata skunkbush sumac</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>Ribes aureum golden currant</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>Ribes cereum wax currant</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>16</td>
<td>Rosa nutkana Nootka rose</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>17</td>
<td>Rosa woodsii Woods rose</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>18</td>
<td>Sambucus nigra ssp cerulea blue elderberry</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>19</td>
<td>Symphoricarpos albus snowberry</td>
<td>N</td>
<td>0 - 1/4 or 1/2 - 1.0</td>
<td>136,000</td>
<td>4</td>
<td>4 X</td>
<td>X</td>
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</tr>
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</table>
### Table 6 Continued: Pollinator Plant List 18 - 25 Inch Precipitation

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Bloom Color and Time</th>
<th>Origin</th>
<th>Seeding Depth (in)</th>
<th>Seeds/lb</th>
<th>Minimum Seeding Rate (PLS lbs/ac)</th>
<th>Plant Spacing (ft)</th>
<th>Soils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sambucus nigra ssp cerulea</td>
<td>blue elderberry</td>
<td>Spring: N seedlings</td>
<td>N</td>
<td>N/A</td>
<td>plants</td>
<td>10</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td># Symphoricarpos albus</td>
<td>snowberry</td>
<td>N seedlings</td>
<td>N</td>
<td>N/A</td>
<td>plants</td>
<td>4</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

* Species that germinate and establish well. Several of these species should be included in every mix.

^ Plant in clumps of 10 or in rows.

# Should not be planted near orchards.
PLANT SELECTION AND ESTABLISHMENT PROTOCOLS
FOR POLLINATOR HABITAT PLANTINGS

6 – 9” and 9 – 12” PRECIPITATION ZONES

PLANT SELECTIONS

• Select plants from the Plant List that corresponds to your precipitation range.
• A mixture of 5 species including one that blooms in spring, one in summer and one in fall is recommended.
• Species with an asterisk (*) are known to establish easily and are commercially available in large quantities. It is strongly recommended several of these species be included in all mixes. The remainder of species for each mix will be dependent on seed availability and the price the landowner is willing to pay.
• Species not included on these lists may be substituted only if approved by the State Plant Materials Specialist.

RECOMMENDED ESTABLISHMENT PROTOCOLS

SITE PREP

• Eliminate existing vegetation prior to seeding with tillage, herbicide, or a combination of techniques.
• Fallow the area to be seeded for one growing season. Delay seeding until after a flush of fall germinating weeds. These weed seedlings need to be controlled prior to any seeding.

SEEDING

• Seed forbs and grasses at the same time in a late fall dormant planting (November or December).
• One of two seeding methods is recommended:
  o 1) Pull the tubes on the split packer drill and allow the seed to be broadcast on the surface.
  o 2) Run an empty split packer drill through the field and then broadcast seed the field.
• Rice hulls, cracked grain or granular clay may be used to assist seed flow.
• Omit grasses from the planting mix in areas heavily infested with cheatgrass to allow for the option of using selective grass herbicides. This should only be done if the ground is not highly erodible.
SHRUB ESTABLISHMENT

- Plant shrub seedlings in March or April directly into sod with vegetation that has been killed during the previous growing season with 1-2 applications of glyphosate. Plant shrubs in areas that will not be mowed, or in rows to allow for mowing between the rows.
- Suppress weed growth around the shrubs with use of weed barrier fabric or glyphosate.
- Install protective tubes or other barriers to prevent damage from rodents, rabbits and deer.

MANAGEMENT

- Manage weeds during the first year by mowing to prevent weed seeds from disseminating.
- Manage weeds during the years following by spot spraying, using pre-emergent herbicides or herbicides applied during phases of perennial dormancy.
- Do not use fertilizers during the first year of establishment.

Establishment techniques different than those listed above may be used, but only with extreme caution. The above-mentioned protocols have proven to have the highest rates of success.

THERE ARE MULTIPLE CHALLENGES ASSOCIATED WITH ESTABLISHING FORB PLOTS. Many forb seedings fail due to low germination, weed competition, and neglect. Establishing, monitoring and maintaining forb plantings is expensive and labor-intensive. The area may have to be re-seeded if an adequate stand is not achieved the first time.

An alternative establishment method is transplanting forb seedlings. Transplanting seedlings may initially be more expensive than seeding but may be less expensive in the long run, especially if a seeding fails and has to be reseeded. The advantages of forb seedlings are: there are no seed dormancy or germination concerns, they already have a developed root system, and they can better compete with weeds. To establish forb seedlings, use the same protocols listed above for shrub establishment.
PLANT SELECTIONS AND ESTABLISHMENT PROTOCOLS
FOR POLLINATOR HABITAT PLANTINGS

12 - 16” PRECIPITATION ZONES

PLANT SELECTIONS

• Select plants from the Plant List that corresponds to your precipitation range.
• A mixture of 9 species including 3 that bloom in spring, 3 in summer and 3 in fall is recommended.
• Species on the list with an asterisk (*) are known to establish easily and are commercially available in large quantities. It is strongly recommended several of these species be included in all mixes. The remainder of species for each mix will be dependent on seed availability and the price the landowner is willing to pay.
• Species not included on these lists may be substituted only if approved by the State Plant Materials Specialist.

RECOMMENDED ESTABLISHMENT PROTOCOLS

SITE PREP

• Eliminate existing vegetation prior to seeding with tillage, herbicide, or a combination of techniques.
• Fallow the area to be seeded for one growing season. Delay seeding until after a flush of fall germinating weeds. These weed seedlings need to be controlled prior to any seeding.

SEEDING

• Seed forbs and grasses at the same time in a late fall dormant planting (November or December).
• One of two seeding methods is recommended:
  o 1) Drill seed into a firm weed-free seedbed. The best drill seedings have been accomplished by setting the drill to place the seed no deeper than ¼ inch. Drag chains or press wheels help to cover the seed with a thin soil layer.
  o 2) Broadcast seed into a weed-free seedbed. The best broadcast seedings have been accomplished by pulling the tubes on the drill and running the packer wheels with enough down pressure to create good furrows.
• Rice hulls, cracked grain or granular clay may be used to assist seed flow.
• Omit grasses from the planting mix in areas heavily infested with cheatgrass to allow for the option of using selective grass herbicides. This should only be done if the ground is not highly erodible.

SHRUB ESTABLISHMENT

• Plant shrub seedlings in April directly into sod with vegetation that has been killed during the previous growing season with 1-2 applications of glyphosate. Plant shrubs in areas that will not be mowed, or in rows to allow for mowing between the rows.
• Suppress weed growth around the shrubs with use of weed barrier fabric or glyphosate.
• Install protective tubes or other barriers to prevent damage from rodents, rabbits and deer.

MANAGEMENT

• Manage weeds during the first year by mowing to prevent weed seeds from disseminating.
• Manage weeds during the years following by spot spraying, using pre-emergent herbicides or herbicides applied during phases of perennial dormancy.
• Do not use fertilizers during the first year of establishment.

Establishment techniques different than those listed above may be used, but only with extreme caution. The above-mentioned protocols have proven to have the highest rates of success.

THERE ARE MULTIPLE CHALLENGES ASSOCIATED WITH ESTABLISHING FORB PLOTS. Many forb seedings fail due to low germination, weed competition, and neglect. Establishing, monitoring and maintaining forb plantings is expensive and labor-intensive. The area may have to be re-seeded if an adequate stand is not achieved the first time.

An alternative establishment method is transplanting forb seedlings. Transplanting seedlings may initially be more expensive than seeding but may be less expensive in the long run, especially if a seeding fails and has to be reseeded. The advantages of forb seedlings are: there are no seed dormancy or germination concerns, they already have a developed root system, and they can better compete with weeds. To establish forb seedlings, use the same protocols listed above for shrub establishment.
PLANT SELECTIONS AND ESTABLISHMENT PROTOCOLS
FOR POLLINATOR HABITAT PLANTINGS

16 - 18” and 18 – 25” PRECIPITATION ZONES

PLANT SELECTIONS

- Select plants from the Plant List that corresponds to your precipitation range.
- A mixture of 9 species including 3 that bloom in spring, 3 in summer and 3 in fall is recommended.
- Species on the list with an asterisk (*) are known to establish easily and are commercially available in large quantities. It is strongly recommended several of these species be included in all mixes. The remainder of species for each mix will be dependent on seed availability and the price the landowner is willing to pay.
- Species not included on these lists may be substituted only if approved by the State Plant Materials Specialist.

RECOMMENDED ESTABLISHMENT PROTOCOLS

SITE PREP

- Eliminate existing vegetation prior to seeding with tillage, herbicide, or a combination of techniques.
- Fallow weedy fields for one growing season.
- Create a firm, weed-free seed bed. Rule of thumb: a person’s footprint will not be deeper than ½ inch.

SEEDING

- Ideally, if grasses are included in a mix they should be seeded in the spring (May) and forbs should be seeded in the fall (late October). This allows for another season of broad-leaf weed control with application of selective herbicides. If two seedings cannot be performed, grasses and forbs should be seeded together in the fall. Forbs should not be seeded in the spring because most need a cold-moist period to break seed dormancy.
- The drill should be set to place the seed no deeper than ¼ inch. Do NOT harrow after seeding. To acquire very thin soil coverage, either use press wheels, drag chains, or a roller packer. Double the seeding rate in draws and other areas where concentrated water flow may occur.
- Rice hulls, cracked grain or granular clay may be used to assist seed flow.
• Omit grasses from the planting mix in areas heavily infested with cheatgrass, ventenata, jointed goatgrass or wild oats to allow for the option of using selective grass herbicides. This should only be done if the ground is not highly erodible.

SHRUB ESTABLISHMENT

• Plant shrub seedlings in May directly into sod with vegetation that has been killed during the previous growing season with 1-2 applications of glyphosate. Plant shrubs in areas that will not be mowed, or in rows to allow for mowing between the rows.
• Suppress weed growth around the shrubs with use of weed barrier fabric or glyphosate.
• Install protective tubes or other barriers to prevent damage from rodents, rabbits and deer.

MANAGEMENT:

• Manage weeds during the first year by mowing to prevent weed seeds from disseminating.
• Manage weeds during the years following by spot spraying, using pre-emergent herbicides or herbicides applied during phases of perennial dormancy.
• Do not use fertilizers during the first year of establishment.

Establishment techniques different than those listed above may be used, but only with extreme caution. The above-mentioned protocols have proven to have the highest rates of success.

THERE ARE MULTIPLE CHALLENGES ASSOCIATED WITH ESTABLISHING FORB PLOTS. Many forb seedings fail due to low germination, weed competition, and neglect. Establishing, monitoring and maintaining forb plantings is expensive and labor-intensive. The area may have to be re-seeded if an adequate stand is not achieved the first time.

An alternative establishment method is transplanting forb seedlings. Transplanting seedlings may initially be more expensive than seeding but may be less expensive in the long run, especially if a seeding fails and has to be reseeded. The advantages of forb seedlings are: there are no seed dormancy or germination concerns, they already have a developed root system, and they can better compete with weeds. To establish forb seedlings, use the same protocols listed above for shrub establishment.
PLANT PHOTOS AND DESCRIPTIONS
Additional information for many of these species can be found in NRCS Plant Guides and Fact Sheets, available for download from the PLANTS Database: www.plants.usda.gov. Seeding rates are PLS lb/ac. Rates should be adjusted to the proper percentage when used as part of a seed mixture.

FORB – LEGUME DESCRIPTIONS

*Achillea millefolium*, western yarrow
- Origin: native
- Mature Height: 0.5 - 1.5 ft
- Growth Rate: rapid
- Growth Habit: upright to prostrate
- Wildlife Value: forage
- Attracts: butterflies, some bees
- Flowers: white to yellow
- Bloom: June – August
- Precip Range: 6 – 25 in
- Seeding Rate: 0.5 lb/ac

*Canada milkvetch*.

*Astragalus canadensis*, Canada milkvetch
- Origin: native
- Mature Height: 1 – 2.5 ft
- Growth Rate: moderate
- Growth Habit: prostrate to upright
- Wildlife Value: forage & seed food source
- Attracts: bees, butterflies and is host for some white and sulphur butterfly larvae
- Flowers: June - July
- Bloom: cream
- Precip Range: 16+ in
- Seeding Rate: 4 lb/ac

*Astragalus cicer*, cicer milkvetch
- Origin: introduced
- Mature Height: 1 - 3 ft
- Growth Rate: moderate to rapid
- Growth Habit: upright (lodges at maturity)
- Wildlife Value: forage & seed food source
- Attracts: bees, butterflies
- Flowers: cream
- Bloom: June-July
- Precip Range: 16 + in
- Seeding Rate: 7 lb/ac
**Plants for Pollinators in the Inland Northwest**

**Astragalus filipes**, basalt milkvetch  
Origin: native  
Mature height: 1-3 ft  
Growth Rate: moderate to rapid  
Growth Habit: upright  
Wildlife Value: good forage  
Attracts: bees, butterflies  
Flowers: white to cream  
Bloom: May-July  
Precip Range: 6 - 16 in  
Seeding Rate: 8 lb/ac

![Basalt milkvetch. Clint Shock, Oregon State University](image)

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**Balsamorhiza careyana**, Carey’s balsamroot  
Origin: native  
Mature Height: 1-2 ft  
Growth Rate: slow  
Growth Habit: upright  
Wildlife Value: fair forage  
Attracts: bees  
Flowers: yellow  
Bloom: April - May  
Precip Range: 6 - 16 in  
Seeding Rate: 18 lb/ac

![Carey’s balsamroot. www.perr.com](image)

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**Balsamorhiza sagittata**, arrowleaf balsamroot  
Origin: native  
Mature Height: 1-2 ft  
Growth Rate: slow  
Growth Habit: upright  
Wildlife Value: fair forage  
Attracts: bees  
Flowers: yellow  
Bloom: April - May  
Precip Range: 16 – 25 in  
Seeding Rate: 18 lb/ac

![Arrowleaf balsamroot. Al Schneider, PLANTS Database](image)
**Chaenactis douglasii**, Douglas’ dustymaiden
Origin: native
Mature Height: 0.5-2 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: insects eaten by young birds
Attracts: bees
Flowers: white to pinkish
Bloom: June–July
Precip Range: 6 - 16 in
Seeding Rate: 3 lb/ac

**Chamerion angustifolium**, fireweed
Origin: native
Mature Height: 2 – 4 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: fair to good forage
Attracts: bees
Flowers: June - September
Bloom: pink
Precip Range: 18+ in
Seeding Rate: 0.5 lb/ac

**Cleome lutea**, yellow beeplant
Origin: native
Mature Height: 2.3 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: cover
Attracts: bees
Flowers: yellow
Bloom: May-June
Precip Range: 9 – 18 in
Seeding Rate: 10 lb/ac
**Crepis atribarba**, slender hawksbeard
Origin: native
Mature Height: 0.5 – 2.5 ft
Growth Rate: slow
Growth Habit: upright
Wildlife Value: fair forage
Attracts: bees, butterflies
Flowers: yellow
Bloom: May - June
Precip Range: 6 – 16 in
Seeding Rate: 3 lb/ac

**Dalea ornata**, western prairie clover
Origin: native
Mature Height: 1-2.5 ft
Growth Rate: moderate
Growth Habit: upright
Wildlife Value: excellent forage
Attracts: bees
Flowers: pink, purple
Bloom: June-August
Precip Range: 12 - 18 in
Seeding Rate: 7 lb/ac

**Erigeron filifolius**, threadleaf fleabane
Origin: native
Mature Height: 4 – 20 in
Growth Rate: slow
Growth Habit: upright
Wildlife Value: poor forage
Attracts: bees
Flowers: blue, pink, white
Bloom: June - August
Precip Range: 6 – 25 in
Seeding Rate: 4 lb/ac
Erigeron linearis, linearleaf daisy
Origin: native
Mature Height: 2 – 12 in
Growth Rate: slow
Growth Habit: upright
Wildlife Value: poor forage
Attracts: bees, butterflies; larval host for Sagebrush Checkerspot butterfly
Flowers: yellow
Bloom: April - May
Precip Range: 6 – 16 in
Seeding Rate: 4 lb/ac

Erigeron pumilus, shaggy daisy
Origin: native
Mature Height: 2 – 20 in
Growth Rate: slow
Growth Habit: upright
Wildlife Value: poor forage
Attracts: bees, butterflies
Flowers: white, blue, pink
Bloom: May - July
Precip Range: 6 – 25 in
Seeding Rate: 1 lb/ac

Erigeron speciosus, showy daisy
Origin: native
Mature Height: 6 – 32 in
Growth Rate: slow
Growth Habit: upright
Wildlife Value: poor forage
Attracts: bees, butterflies
Flowers: purple, white
Bloom: June - August
Precip Range: 18 – 25 + in
Seeding Rate: 1 lb/ac
**Eriophyllum lanatum**, woolly sunflower or Oregon sunshine
- Origin: native
- Mature Height: 4 – 24 in
- Growth Rate: rapid
- Growth Habit: upright
- Wildlife Value: food and cover
- Attracts: bees
- Flowers: yellow
- Bloom: May - July
- Precip Range: 9 – 25 in
- Seeding Rate: 4 lb/ac

**Gaillardia aristata**, blanketflower
- Origin: native
- Mature Height: 1-1.5 ft
- Growth Rate: moderate
- Growth Habit: upright
- Wildlife Value: excellent food and cover
- Attracts: bees, butterflies
- Flowers: orange, yellow
- Bloom: July-September
- Precip Range: 16 – 25 in
- Seeding Rate: 6 lb/ac

**Geranium viscosissimum**, sticky geranium
- Origin: native
- Mature Height: 2-3 ft
- Growth Rate: rapid
- Growth Habit: upright
- Wildlife Value: good forage
- Attracts: bees, butterflies
- Flowers: pink, purple
- Bloom: May-June
- Precip Range: 16 – 25 in
- Seeding Rate: 20 lb/ac
Plants for Pollinators in the Inland Northwest

**Hedysarum boreale**, northern or Utah sweetvetch

Origin: introduced (native to UT)
Mature Height: 1-2 ft
Growth Rate: rapid
Growth Habit: spreading to upright
Wildlife Value: good forage
Attracts: bees, butterflies
Flowers: pink, purple
Bloom: May-June
Precip Range: 9 - 18 in
Seeding Rate: 24 lb/ac

**Helianthella species**, sunflower

Origin: native
Mature Height: 0.75 – 3.5 ft
Growth Rate: slow
Growth Habit: upright
Wildlife Value: food and cover
Attracts: bees, wasps, butterflies
Flowers: yellow
Bloom: June - August
Precip Range: 12 – 25 in
Seeding Rate: 4 lb/ac

**Helianthus annuus**, annual sunflower

Origin: native
Mature Height: 2-5 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: good winter food
Attracts: butterflies, bees
Flowers: yellow
Bloom: July-September
Precip Range: 6 - 16 in
Seeding Rate: 4 lb/ac
**Geum triflorum**, prairie smoke
Origin: native
Mature height: 1 ft
Growth Rate: moderate to rapid
Growth Habit: upright
Wildlife value:
Attracts: bees
Flowers: yellow (enclosed by pink sepals)
Bloom: May-June
Precip Range: 18 – 25+ in
Seeding Rate: 2 lb/ac

**Linum lewisii**, Lewis flax
Origin: native
Mature height: 1-2 ft
Growth Rate: moderate to rapid
Growth Habit: upright
Wildlife value: excellent food
Attracts: bees
Flowers: light blue
Bloom: May-July
Precip Range: 9 – 25 in
Seeding Rate: 5 lb/ac

**Linum perenne**, blue flax
Origin: introduced
Mature height: 1-2 ft
Growth Rate: moderate to rapid
Growth Habit: upright
Wildlife value: excellent food
Attracts: bees
Flowers: light blue
Bloom: May-July
Broadcast Seeding Rate: 4 lb/ac
In-row Spacing: 1-2 ft
Precip Range: 9 – 25 in
Seeding Rate: 4 lb/ac
Plants for Pollinators in the Inland Northwest

*Lomatium dissectum*, fernleaf biscuitroot
- Origin: native
- Mature Height: 0.5-3 ft
- Growth Rate: slow
- Growth Habit: erect
- Wildlife Value: good forage
- Attracts: bees, flies, beetles, butterflies; host for larvae of Anise and Indra swallowtail butterflies
- Flowers: yellow green
- Bloom: May-July
- Precip Range: 12 – 25 in
- Seeding Rate: 20 lb/ac

*Fernleaf biscuitroot. Dave Skinner*

*Lomatium triternatum*, nineleaf biscuitroot
- Origin: native
- Mature Height: 2-3 ft
- Growth Rate: slow
- Growth Habit: erect
- Wildlife Value: good forage
- Attracts: bees, flies, beetles, butterflies; host for larvae of Anise and Indra swallowtail butterflies
- Flowers: yellow green
- Bloom: May-June
- Precip Range: 9 – 25 in
- Seeding Rate: 20 lb/ac

*Nineleaf biscuitroot. A. Schneider. PLANTS Database*

*Machaeranthera canescens*, hoary tansyaster
- Origin: native
- Mature Height: 2-3 ft
- Growth Rate: rapid
- Growth Habit: erect
- Wildlife Value: fair to good forage
- Attracts: bees, butterflies, moths
- Flowers: blue to purple
- Bloom: August-October
- Precip Range: 6 - 18 in
- Seeding Rate: 1 lb/ac

*Hoary tansyaster. Pamela Pavek*
**Medicago sativa**, alfalfa
Origin: introduced
Mature Height: 2-3 ft
Growth Rate: fast
Growth Habit: upright
Wildlife Value: excellent forage
Attracts: bees, butterflies; host of some blue and hairstreak butterflies
Flowers: purple
Bloom: May – July (delay by cutting)
Precip Range: 9 – 25 in
Seeding Rate: 5 lb/ac

**Medicago sativa ssp. falcata**, yellow blossom alfalfa
Origin: introduced
Mature Height: 2-3 ft
Growth Rate: fast
Growth Habit: upright
Wildlife Value: excellent forage
Attracts: bees, butterflies
Flowers: yellow
Bloom: May – July (delay by cutting)
Precip Range: 9 – 25 in
Seeding Rate: 5 lb/ac

**Melilotus officinalis**, white and yellow sweetclover
Origin: introduced
Mature Height: 1-3 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: fair forage
Attracts: many bees, butterflies; larval host of some sulphur butterflies
Flowers: white or yellow
Bloom: June-July
Precip Range: 6 - 9 in (will become weedy at higher precip)
Seeding Rate: do not exceed 1 lb/ac in mix
Plants for Pollinators in the Inland Northwest

*Mentzelia laevicaulis*, blazing star
Origin: native
Mature Height: 1 – 3.5 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: poor to fair forage
Attracts: bees
Flowers: yellow
Bloom: June - August
Precip Range: 6 – 12 in
Seeding Rate: 8 lb/ac

*Oenothera pallida*, evening primrose
Origin: native
Mature Height: 4 – 20 in
Growth Rate: moderate
Growth Habit: upright
Wildlife Value: poor to fair forage
Attracts: bees, moths, butterflies
Flowers: white, pink
Bloom: May - June
Precip Range: 9 – 16 in
Seeding Rate: 3 lb/ac

*Onobrychis viciifolia*, sainfoin
Origin: introduced
Mature Height: 2-5 ft
Growth rate: rapid
Growth Habit: upright
Wildlife Value: excellent forage
Attracts: larger bees
Flowers: pink
Bloom: May-July (delay by cutting)
Precip Range: 14 – 25 in
Seeding Rate: 34 lb/ac
Plants for Pollinators in the Inland Northwest

**Penstemon attenuatus**, taper-leaved penstemon
- Origin: native
- Mature Height: 4 in – 3 ft
- Growth Rate: moderate
- Growth Habit: upright
- Wildlife Value: fair to good forage
- Attracts: bees, butterflies; larval host of some Checkerspot butterflies
- Flowers: blue, purple, pink
- Bloom: May - July
- Precip Range: 12 – 25 in
- Seeding Rate: 1 lb/ac

**Penstemon confertus**, yellow penstemon
- Origin: native
- Mature Height: 0.75 – 2 ft
- Growth Rate: moderate
- Growth Habit: upright
- Wildlife Value: fair to good forage
- Attracts: bees, butterflies; larval host of some Checkerspot butterflies
- Flowers: pale yellow
- Bloom: June - July
- Precip Range: 18 – 25 in
- Seeding Rate: 2 lb/ac

**Penstemon deustus**, hotrock penstemon
- Origin: native
- Mature Height: 0.75 – 2 ft
- Growth Rate: moderate
- Growth Habit: upright
- Wildlife Value: fair to good forage
- Attracts: bees, butterflies
- Flowers: white
- Bloom: June - July
- Precip Range: 9 – 25 in
- Seeding Rate: 3 lb/ac
**Penstemon pruinosis**, Chelan penstemon  
Origin: native  
Mature Height: 4 – 16 in  
Growth Rate: moderate  
Growth Habit: upright  
Wildlife Value: fair to good forage  
Attracts: bees, butterflies; larval host of some Checkerspot butterflies  
Flowers: blue, purple  
Bloom: June - July  
Precip Range: 6 – 16 in  
Seeding Rate: 1 lb/ac

**Penstemon speciosus**, royal penstemon  
Origin: native  
Mature Height: 0.75 – 3 ft  
Growth Rate: moderate  
Growth Habit: upright  
Wildlife Value: fair to good forage  
Attracts: bees, butterflies; larval host of some Checkerspot butterflies  
Flowers: blue  
Bloom: June - July  
Precip Range: 9 – 18 in  
Seeding Rate: 3 lb/ac

**Penstemon venustus**, Venus penstemon  
Origin: native  
Mature Height: 1 – 2.5 ft  
Growth Rate: moderate  
Growth Habit: upright  
Wildlife Value: fair to good forage  
Attracts: bees, butterflies; larval host of some Checkerspot butterflies  
Flowers: blue - purple  
Bloom: June - July  
Precip Range: 16 – 18 in  
Seeding Rate: 1 lb/ac
**Phacelia hastata**, whiteleaf phacelia  
Origin: native  
Mature Height: 1-2 ft  
Growth Rate: rapid  
Growth Habit: upright  
Wildlife Value: good forage  
Attracts: bees  
Flowers: white, lavender  
Bloom: May - June  
Precip Range: 9 – 16 in  
Seeding Rate: 7 lb/ac

**Phacelia heterophylla**, varileaf phacelia  
Origin: native  
Mature Height: 0.75 – 4 ft  
Growth Rate: rapid  
Growth Habit: upright  
Wildlife Value: good forage  
Attracts: bees  
Flowers: white  
Bloom: May - June  
Precip Range: 9 – 16 in  
Seeding Rate: 2 lb/ac

**Potentilla arguta**, tall cinquefoil  
Origin: native  
Mature Height: 1.5 – 3 ft  
Growth Rate: rapid  
Growth Habit: upright  
Wildlife Value: fair to good forage  
Attracts: bees, butterflies  
Flowers: pale yellow to white  
Bloom: June - July  
Precip Range: 18 – 25 in  
Seeding Rate: 1 lb/ac
Plants for Pollinators in the Inland Northwest

**Potentilla gracilis**, slender cinquefoil
Origin: native
Mature Height: 1 – 2 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: poor to fair forage
Attracts: bees, butterflies
Flowers: yellow
Bloom: June - July
Precip Range: 18 – 25 in
Seeding Rate: 1 lb/ac

**Sanguisorba minor**, small burnet
Origin: introduced
Mature Height: 1-2.5 ft
Growth Rate: rapid
Growth Habit: upright
Wildlife Value: excellent forage
Attracts: bees
Flowers: green-red
Bloom: June-August
Precip Range: 12 – 25 in
Seeding Rate: 20 lb/ac
**Solidago canadensis**, Canada goldenrod
- Origin: native
- Mature Height: 3 – 5 ft
- Growth Rate: rapid
- Growth Habit: upright, rhizomatous
- Wildlife Value: fair forage and seeds eaten by songbirds
- Attracts: bees, butterflies
- Flowers: yellow
- Bloom: August - October
- Precip Range: 18 – 25 + in
- Seeding Rate: 1 lb/ac

**Solidago missouriensis**, Missouri goldenrod
- Origin: native
- Mature Height: 0.75 – 3 ft
- Growth Rate: rapid
- Growth Habit: upright, rhizomatous
- Wildlife Value: fair forage and seeds eaten by songbirds
- Attracts: bees, butterflies
- Flowers: yellow
- Bloom: August - October
- Precip Range: 12 – 25 + in
- Seeding Rate: 1 lb/ac
Sphaeralcea spp., globemallow  
Origin: native  
Mature Height: 1.5-3 ft  
Growth Rate: rapid  
Growth Habit: upright, rhizomatous  
Wildlife Value: excellent forage  
Attracts: bees, flies, butterflies  
Flowers: orange  
Bloom: May - June  
Precip Range: 6 – 16 in  
Seeding Rate: 2 lb/ac

Symphiotrichum spathulatum, western mountain aster  
Origin: native  
Mature Height: 0.5-3 ft  
Growth Rate: moderate  
Growth Habit: upright  
Wildlife Value: excellent food and cover  
Attracts: butterflies, bees, beetles; larval host of some Crescent butterflies (Phyciodes spp.)  
Flowers: purple  
Bloom: July - October  
Precip Range: 12 – 25 in  
Seeding Rate: 2 lb/ac

Trifolium spp., clover species  
Origin: introduced  
Mature Height: 0.5-1 ft  
Growth Rate: rapid  
Growth Habit: spreading  
Wildlife Value: excellent forage  
Attracts: bees, butterflies; larval host for some white and sulphur butterflies  
Flowers: white, red, pink  
Bloom: May-July (delay by cutting)  
Precip Range: 18 – 25+ in  
Seeding Rate: 4 lb/ac
SHRUB DESCRIPTIONS

**Amelanchier alnifolia**, serviceberry
- Origin: native
- Mature Height: 6-15 ft
- Growth Rate: slow
- Growth Habit: upright
- Wildlife Value: good cover and food
- Attracts: butterflies, bees
- Flowers: white
- Bloom: May-June
- Precip Range: 12 – 25 in
- Planting: establish with plants
- In-row Spacing: 10 ft

**Caragana arborescens**, Siberian peashrub
- Origin: introduced
- Mature Height: 6-20 ft
- Growth Rate: rapid
- Growth Habit: erect oval shrub
- Wildlife Value: nesting
- Attracts: large bees (especially bumblebees)
- Flowers: yellow
- Bloom: April-June
- Precip Range: 6 – 25 in
- Planting: establish with plants
- In-row Spacing: 10 ft

**Ceanothus sanguineus**, redstem ceanothus
- Origin: native
- Mature Height: 2 – 6 ft
- Growth Rate: rapid
- Growth Habit: upright
- Wildlife Value: elk browse, berries for birds
- Attracts: bees, butterflies; larval host for the pale swallowtail and some hairstreak and blue butterflies
- Flowers: white
- Bloom: May - June
- Precip Range: 18 – 25 in
- Planting: establish with plants
- In-row Spacing: 8 ft
Plants for Pollinators in the Inland Northwest

**Chrysothamnus viscidiflorus**, green rabbitbrush
- Origin: native
- Mature Height: 2 – 3 ft
- Growth Rate: rapid
- Growth Habit: upright
- Wildlife Value: food, forage, cover
- Attracts: bees, butterflies; larval host of Sagebrush Checkerspot butterfly
- Flowers: yellow
- Bloom: August - October
- Precip Range: 6 – 18 in
- Seeding Rate: 0.5 lb/ac
- Planting: establish with plants
- In-row Spacing: 4 ft

**Crataegus douglasii**, black hawthorn
- Origin: native
- Mature Height: 12-30 ft
- Growth Rate: slow
- Growth Habit: upright
- Wildlife Value: food and cover
- Attracts: moths, bees, butterflies
- Flowers: white
- Blooms: May-June
- Precip Range: 16 – 25 + in
- Planting: establish with plants
- In-row Spacing: 8 ft

**Dasiphora fruticosa**, shrubby cinquefoil
- Origin: native
- Mature Height: 2-4 ft
- Growth Rate: slow
- Growth Habit: upright
- Wildlife Value: food and cover
- Attracts: moths, bees, butterflies, beetles, flies
- Flowers: yellow
- Blooms: May-June
- Precip Range: 18 – 25 + in
- Planting: establish with plants
- In-row Spacing: 6 ft
**Plants for Pollinators in the Inland Northwest**

**Ericameria nauseosa**, rubber rabbitbrush  
Origin: native  
Mature Height: 2-6 ft  
Growth Rate: moderate  
Growth Habit: open spreading  
Wildlife Value: food, winter forage, cover  
Attracts: butterflies, small bees  
Flowers: yellow  
Bloom: August-October  
Precip Range: 6 – 18 in  
Seeding Rate: 0.5 lb/ac  
Planting: establish with plants  
In-row Spacing: 4 ft

**Eriogonum heracleoides**, Whorled buckwheat  
Origin: native  
Mature Height: 1-3 ft  
Growth Rate: moderate  
Growth Habit: spreading, open sub-shrub  
Wildlife Value: cover, fall forage  
Attracts: moths, butterflies, bees, beetles; larval host of some blue and copper butterflies  
Flowers: white, cream  
Bloom: July-September  
Precip Range: 9 – 18 in  
Seeding Rate: 4 lb/ac  
Planting: establish with plants  
In-row Spacing: 4 ft

**Eriogonum niveum**, Snow buckwheat  
Origin: native  
Mature Height: 1 – 2 ft  
Growth Rate: moderate  
Growth Habit: spreading, rounded shrub  
Wildlife Value: forage for mule deer and bighorn sheep  
Attracts: bees, butterflies, moths, wasps; larval host of some blue butterflies  
Flowers: white, pink  
Bloom: August - September  
Precip Range: 6 – 12 in  
Seeding Rate: 3 lb/ac  
Planting: establish with plants  
In-row Spacing: 4 ft
**Eriogonum sphaerocephalum**, round-headed buckwheat
- **Origin:** native
- **Mature Height:** 1 – 1.5 ft
- **Growth Rate:** slow
- **Growth Habit:** upright
- **Wildlife Value:** forage, cover
- **Attracts:** bees, moths, butterflies; larval host of some blue butterflies
- **Flowers:** yellow
- **Bloom:** June - August
- **Precip Range:** 6 – 12 in
- **Seeding Rate:** 4 lb/ac
- **Planting:** establish with plants
- **In-row Spacing:** 4 ft

**Eriogonum umbellatum**, sulphurflower buckwheat
- **Origin:** native
- **Mature Height:** 0.5-2 ft
- **Growth Rate:** moderate
- **Growth Habit:** spreading, open sub-shrub
- **Wildlife Value:** cover, fall forage
- **Attracts:** moths, butterflies, bees; larval host of some blue butterflies
- **Flowers:** yellow
- **Bloom:** July-September
- **Precip Range:** 6 – 25 in
- **Seeding Rate:** 4 lb/ac
- **Planting:** establish with plants
- **In-row Spacing:** 4 ft

**Holodiscus discolor**, oceanspray
- **Origin:** native
- **Mature Height:** 3 – 9 ft
- **Growth Rate:** moderate
- **Growth Habit:** upright, arching branches
- **Wildlife Value:** browse and cover
- **Attracts:** bees, butterflies; larval host of the pale swallowtail butterfly and some “blues”
- **Flowers:** cream
- **Bloom:** May - July
- **Precip Range:** 18 – 25 + in
- **Planting:** establish with plants
- **In-row Spacing:** 6 ft
**Mahonia aquifolium, M. repens,**
Origin: native  
Oregon-grape  
Mature Height: 1 – 2 ft (M. repens); 3 – 5 ft (M. aquifolium)  
Growth Rate: rapid  
Growth Habit: creeping (M. repens); upright (M. aquifolium)  
Wildlife Value: food and cover  
Attracts: bees  
Flowers: yellow  
Bloom: May - June  
Precip Range: 16 – 25 + in  
Planting: establish with plants  
In-row Spacing: 4 ft

**Philadelphus lewisii,**  Lewis’ mockorange  
Origin: native  
Mature Height: 4 – 8 ft  
Growth Rate: slow  
Growth Habit: branching shrub  
Wildlife Value: food (berries)  
Attracts: bees, butterflies  
Flowers: white  
Bloom: May - June  
Precip Range: 12 – 25 in  
Planting: establish with plants  
In-row Spacing: 10 ft

**Physocarpus malvaceus,** ninebark  
Origin: native  
Mature Height: 1.5 – 6 ft  
Growth Rate: slow  
Growth Habit: spreading erect shrub  
Wildlife Value: food, cover  
Attracts: bees, butterflies, flies  
Flowers: white  
Bloom: June  
Precip Range: 18 – 25+ in  
Planting: establish with plants  
In-row Spacing: 6 ft
**Prunus virginiana**, chokecherry
Origin: native
Mature Height: 10 - 20 ft
Growth Rate: moderate
Growth Habit: oval to round; suckering
Wildlife Value: excellent food and cover
Attracts: bees, butterflies; larval host of the two-tailed swallowtail butterfly (largest butterfly in the PNW)
Flowers: white
Bloom: May
Precip Range: 12 – 25 in
Planting: establish with plants
In-row Spacing: 12 ft

**Purshia tridentata**, antelope bitterbrush
Origin: native
Mature Height: 2-6 ft
Growth Rate: moderate
Growth Habit: upright shrub
Wildlife Value: cover, fall forage
Attracts: butterflies, bees, flies; larval host of some hairstreak butterflies
Flowers: yellow
Bloom: May-June
Precip Range: 11 – 24 in
Seeding Rate: 2 lb/ac
Planting: establish with plants
In-row Spacing: 6 ft

**Ribes aureum**, golden currant
Origin: native
Mature Height: 4 - 6 ft
Growth Rate: moderate
Growth Habit: spreading and upright
Wildlife Value: nesting cover, fruit
Attracts: early spring bees, bumblebees; larval host of some anglewing butterflies
Flowers: fragrant golden yellow
Bloom: April-May
Precip Range: 16 – 25 in
Planting: establish with plants
In-row Spacing: 6 ft
**Ribes cereum**, wax currant  
Origin: native  
Mature Height: 3 – 4 ft  
Growth Rate: moderate  
Growth Habit: compact, rounded  
Wildlife Value: berries, cover  
Attracts: early spring bees, bumblebees, butterflies, flies; larval host of some anglewing butterflies  
Flowers: white, greenish-white, pink  
Bloom: April - May  
Precip Range: 16 – 25 in  
Planting: establish with plants  
In-row Spacing: 6 ft

**Rosa nutkana**, Nootka rose  
Origin: native  
Mature Height: 3 – 6 ft  
Growth Rate: moderate  
Growth Habit: erect, drooping branches  
Wildlife Value: nesting, cover, excellent food  
Attracts: bees, butterflies, beetles  
Flowers: pink  
Bloom: May - July  
Precip Range: 16 – 25 in  
Planting: establish with plants  
In-row Spacing: 6 ft

**Rosa woodsii**, Wood’s rose  
Origin: native  
Mature Height: 3-6 ft  
Growth Rate: moderate  
Growth Habit: upright to semi-drooping  
Wildlife Value: nesting, cover, excellent food  
Attracts: bees, butterflies  
Flowers: pink  
Bloom: May-July  
Precip Range: 12 – 25 in  
Seeding Rate: 1 lb/ac  
Planting: establish with plants  
In-row Spacing: 6 ft
**Plants for Pollinators in the Inland Northwest**

**Salvia dorrii**, purple sage
- Origin: native
- Mature Height: 1 – 3 ft
- Growth Rate: moderate
- Growth Habit: rounded, compact
- Wildlife Value: food, cover
- Attracts: bees, moths, butterflies
- Flowers: purple
- Bloom: May - July
- Precip Range: 6 – 16 in
- Seeding Rate: 3 lb/ac
- Planting: establish with plants
- In-row Spacing: 2 ft

**Sambucus nigra ssp. cerulea**, blue elderberry
- Origin: native
- Mature Height: 6-15 ft
- Growth Rate: moderate
- Growth Habit: upright
- Wildlife Value: nesting, food
- Attracts: bees, nesting bees, butterflies, beetles, flies
- Flowers: white to cream
- Bloom: June-July
- Precip Range: 18 – 25+ in
- Soil Texture: medium to coarse
- Planting: establish with plants
- In-row Spacing: 10 ft

**Symphoricarpos albus**, snowberry
- Origin: native
- Mature Height: 2-4 ft
- Growth Rate: moderate
- Growth Habit: open and spreading
- Wildlife Value: food, berries, browse, cover
- Attracts: butterflies, bees, hummingbirds; larval host of the Snowberry Checkerspot butterfly
- Flowers: pink
- Bloom: June-August
- Precip Range: 18 – 25+ in
- Soil Texture: fine, medium or coarse
- Planting: establish with plants
- In-row Spacing: 4 ft
BUTTERFLY-PLANT RELATIONSHIPS

Butterflies are a highly visible and attractive ingredient of many inland northwest ecosystems. Approximately 160 species occur in this region but populations of many of them are in decline due to habitat degradation and loss. In addition to their value as pollinators, providing vital components of functioning ecosystems and being aesthetically pleasing, butterflies play an important role as indicators of environmental change. Whether environments or habitats change as a result of human interference or natural processes, butterfly populations are often among the first to respond. Conservation of our butterfly resource is therefore important on many levels and using butterfly-attractive plants is one way that landowners can help slow the trend of diminishing butterfly populations. Many of the plants listed in this technical note attract butterflies to feed on nectar. However, a subset of these also serves as hosts for breeding, multiplying their value for butterfly conservation. These plant species, indicated in the plant description section, provide food for larvae as well as adults and will support breeding populations that may persist from season to season. By selecting appropriate plants, landowners and farmers have the opportunity to contribute to native butterfly conservation as well as aiding other pollinators.

BEE-PLANT RELATIONSHIPS

Table 7 below shows the known relationships between several crops and flowers and the bees that visit them. All types of bees listed on this table are native with the exception of honey bees. Please be aware that many relationships between bees and plants have yet to be discovered and documented. Also keep in mind if crop production enhancement is a primary goal for establishing pollinator habitat, selection of plants that attract the same types of bees and bloom at the same time as the crop may not have a positive result. The best strategy for designing habitat usually involves selecting a variety of plants that bloom in succession throughout the season and attract a variety of bees and other insects.
**TABLE 7: BEE-PLANT RELATIONSHIPS**

<table>
<thead>
<tr>
<th>TYPE OF BEE</th>
<th><strong>Social bees</strong></th>
<th><strong>Solitary bees</strong></th>
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<tbody>
<tr>
<td></td>
<td>BUMBLE</td>
<td>HONEY</td>
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<tr>
<td><strong>CROP</strong></td>
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<td>FLOWER</td>
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<tr>
<td>SPHAERALCEA</td>
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</tbody>
</table>

"X" means likely to visit, "x" means minor use. Three purposes are confounded for some like alfalfa: which bees pollinate it commercially and which will benefit from it planted in seed mixes 1 genera with social species include *Halicuts* and *Dialictus*, all ground-nesters 2 alfalfa leaf-cutting bee and others in its genus *Megachile*. All cut leaves, some nest shallowly underground 3 all species of *Osmia*. Most use masticated leaf pulp rather than mud in nests, some nest shallowly underground 4 all the many and diverse non-social bees that nest underground. "A" is for the alkali bee, *Nomia melanderi*. "P" is specifically for the squash bee, *Peponapis pruinosa* 5 alfalfa is commercially pollinated by alfalfa leaf-cutting bees and alkali bees, but attracts a large diversity of summer-flying bees 6 species of *Penstemon* differ greatly in their fauna of visitors and pollinators. Several pollen wasps (*Pseudomasaris*) are key pollinators of some species.
REFERENCES


For more information about pollinators and pollinator habitat:

"Native Pollinators", "Butterflies", "Bats", and "Ruby Throated Hummingbird" Fish and Wildlife Habitat Management Leaflet Numbers 34, 15, 5, and 14 respectively.
http://www.whmi.nrcs.usda.gov/technical/leaflet.htm

Agroforestry Note on nest sites: http://www.unl.edu/can/agroforestrynotes/an34g08.pdf

How to Reduce Bee Poisoning form Pesticides:

Other NRCS documents: http://plants.usda.gov/pollinators/NRCSdocuments.html

The Xerces Society documents: http://www.xerces.org/

The North American Pollinator Protection Campaign:
http://pollinator.org/nappc/index.html

The Pollinator Partnership: http://www.pollinator.org/
For information about beneficial insects:

The ATTRA Farmscaping to Enhance Biological Control Guide: http://www.attra.org/attra-pub/PDF/farmscaping.pdf

For additional information about the plants listed in this document:

The USDA PLANTS Database: http://www.plants.usda.gov/

For additional information about other plants for pollinators:

The Utah State University Fast Sheet: Gardening for Native Bees in Utah and Beyond

For sources of plant materials:

Plant Materials Tech Note No. 33       Plant and Seed Vendors for ID-MT-NV-E, OR- E, WA-WY